09/939225

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* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *

NEWS  1           Web Page URLs for STN Seminar Schedule - N. America
NEWS  2  Apr 08   "Ask CAS" for self-help around the clock
NEWS  3  Apr 09   BEILSTEIN: Reload and Implementation of a New Subject Area
NEWS  4  Apr 09   ZDB will be removed from STN
NEWS  5  Apr 19   US Patent Applications available in IFICDB, IFIPAT, and IFIUDB
NEWS  6  Apr 22   Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS
NEWS  7  Apr 22   BIOSIS Gene Names now available in TOXCENTER
NEWS  8  Apr 22   Federal Research in Progress (FEDRIP) now available
NEWS  9  Jun 03   New e-mail delivery for search results now available
NEWS 10  Jun 10   MEDLINE Reload
NEWS 11  Jun 10   PCTFULL has been reloaded
NEWS 12  Jul 02   FOREGE no longer contains STANDARDS file segment
NEWS 13  Jul 22   USAN to be reloaded July 28, 2002;
                  saved answer sets no longer valid
NEWS 14  Jul 29   Enhanced polymer searching in REGISTRY
NEWS 15  Jul 30   NETFIRST to be removed from STN
NEWS 16  Aug 08   CANCERLIT reload
NEWS 17  Aug 08   PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 18  Aug 08   NTIS has been reloaded and enhanced
NEWS 19  Aug 19   Aquatic Toxicity Information Retrieval (AQUIRE)
                  now available on STN
NEWS 20  Aug 19   IFIPAT, IFICDB, and IFIUDB have been reloaded
NEWS 21  Aug 19   The MEDLINE file segment of TOXCENTER has been reloaded
NEWS 22  Aug 26   Sequence searching in REGISTRY enhanced
NEWS 23  Sep 03   JAPIO has been reloaded and enhanced
NEWS 24  Sep 16   Experimental properties added to the REGISTRY file
NEWS 25  Sep 16   Indexing added to some pre-1967 records in CA/CAPLUS
NEWS 26  Sep 16   CA Section Thesaurus available in CAPLUS and CA
NEWS 27  Oct 01   CASREACT Enriched with Reactions from 1907 to 1985
NEWS 28  Oct 21   EVENTLINE has been reloaded
NEWS 29  Oct 24   BEILSTEIN adds new search fields
NEWS 30  Oct 24   Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 31  Oct 25   MEDLINE SDI run of October 8, 2002
NEWS 32  Nov 18   DKILIT has been renamed APOLLIT
NEWS 33  Nov 25   More calculated properties added to REGISTRY

NEWS EXPRESS  October 14 CURRENT WINDOWS VERSION IS V6.01,
              CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),
              AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002
NEWS HOURS    STN Operating Hours Plus Help Desk Availability
NEWS INTER    General Internet Information
NEWS LOGIN    Welcome Banner and News Items
NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
NEWS WWW      CAS World Wide Web Site (general information)

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FILE 'HOME' ENTERED AT 17:37:08 ON 01 DEC 2002

=> file caplus
COST IN U.S. DOLLARS                              SINCE FILE       TOTAL
                                                       ENTRY     SESSION
FULL ESTIMATED COST                                     0.21        0.21

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FILE COVERS 1907 - 1 Dec 2002  VOL 137 ISS 23
FILE LAST UPDATED: 29 Nov 2002  (20021129/ED)

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CAS roles have been modified effective December 16, 2001. Please
check your SDI profiles to see if they need to be revised. For
information on CAS roles, enter HELP ROLES at an arrow prompt or use
the CAS Roles thesaurus (/RL field) in this file.

=> s fatty acid
        309984 FATTY
            13 FATTIES
        309987 FATTY
                 (FATTY OR FATTIES)
       3489628 ACID
       1337893 ACIDS
       3953780 ACID
                 (ACID OR ACIDS)
L1      273225 FATTY ACID
                 (FATTY(W)ACID)

=> fat or oil
FAT IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=>  s fat or oil
        152363 FAT
         83943 FATS
        193076 FAT
                 (FAT OR FATS)
        638125 OIL
        276291 OILS
```

```
        716050 OIL
                  (OIL OR OILS)
L2      837432 FAT OR OIL

=> 1 and 2
1 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s 1 and 2
       7358197 1
       7534268 2
L3     4639081 1 AND 2

=> del l3 y

=> s l1 and l2
L3       92558 L1 AND L2

=> s l3 and (fuel oe coal)
        283034 FUEL
        134381 FUELS
        328783 FUEL
                 (FUEL OR FUELS)
         18691 OE
          1418 OES
         20099 OE
                 (OE OR OES)
        196235 COAL
         34046 COALS
        199574 COAL
                 (COAL OR COALS)
             0 FUEL OE COAL
                 (FUEL(W)OE(W)COAL)
L4           0 L3 AND (FUEL OE COAL)

=> s l3 and (fuel or coal)
        283034 FUEL
        134381 FUELS
        328783 FUEL
                 (FUEL OR FUELS)
        196235 COAL
         34046 COALS
        199574 COAL
                 (COAL OR COALS)
L5        2364 L3 AND (FUEL OR COAL)

=> s l5 and (burn?  or ignit? or energy)
        148095 BURN?
         60602 IGNIT?
       1587150 ENERGY
        286579 ENERGIES
       1684689 ENERGY
                 (ENERGY OR ENERGIES)
L6         342 L5 AND (BURN?  OR IGNIT? OR ENERGY)

=> s l6 and emission
        394304 EMISSION
         70881 EMISSIONS
        427663 EMISSION
                 (EMISSION OR EMISSIONS)
```

L7 56 L6 AND EMISSION

=> d l7 1-56 all

L7 ANSWER 1 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2002:810252 CAPLUS
DN 137:341362
TI Purification of regenerative **fuel** exhaust gases from diesel motors with oxy- and SCR catalysts
AU Lachenmaier-Kolch, Jurgen
CS Gunzburg, Germany
SO Fortschritt-Berichte VDI, Reihe 15: Umwelttechnik (2002), 241, i-ix,1-111
CODEN: FRUMFB; ISSN: 0178-9589
PB VDI Verlag GmbH
DT Journal
LA German
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 52, 67
AB The chair **Energy** and Environmental Technologies of the Food Industry operates a small co-generation plant with the ability of analyzing the std. **emission** components. Results of an investigation on 3 different **fuels** (diesel **fuel**, food recycling **oil** Me ester (AME) and rapeseed **oil**) with oxidn.- and SCR-catalysts will be presented. Also a high temp. reactor was designed and instrumented for analyzing SCR-catalysts with a chem.-ionization-mass-spectrometer. The aim is an optimization of oxidn.- and SCR-catalysts for best NOx-redn. rates addnl. with the possibility of using renewable **fuels**. The optimal conversion rate for NOx with the SCR-catalyst is a temp. range 200-350°. The best Alpha-value is 90-110%. The CO-, HC- and particle **emissions** of rapeseed **oil** and AME is lower then the **emissions** of diesel **fuel**. The **emissions** of NOx for rapeseed **oil** rise up to 20% in comparison to diesel **fuel**. The redn. rate of the **emissions** of NOx rise (with the help of urea injection) up to 54, 61, and 67% for rapeseed **oil**, AME, and diesel **fuel**, resp. The CO-**emissions** are reduced to 89% with the use of the oxidn. catalysts, with urea injection 1-3% more redn. The HC-**emissions** are reduced to 43% with the use of the oxidn. catalysts, with the injection of urea 1-8% more redn. Ammonia is detected after urea injection up to 7 mg/m3 for all **fuels**. N2O **emissions** are detected after the injection of urea. The use of diesel **fuel** causes the doubled value of particle **emissions** in comparison to the renewable **fuels**.
ST regenerative diesel **fuel** exhaust treatment catalytic
IT Diesel **fuel** substitutes
(biodiesel; **emission** redn. of regenerative **fuel** powered co-generation plants with oxy- and SCR catalysts)
IT Air pollution
(control; **emission** redn. of regenerative **fuel** powered co-generation plants with oxy- and SCR catalysts)
IT Exhaust gases (engine)
(diesel; **emission** redn. of regenerative **fuel** powered co-generation plants with oxy- and SCR catalysts)
IT Diesel **fuel**
Exhaust gas catalytic converters
Exhaust gases (engine)
Exhaust particles (engine)
(**emission** redn. of regenerative **fuel** powered co-generation plants with oxy- and SCR catalysts)
IT Hydrocarbons, processes
RL: REM (Removal or disposal); PROC (Process)
(**emission** redn. of regenerative **fuel** powered co-generation plants with oxy- and SCR catalysts)
IT **Fats** and Glyceridic **oils**, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(**emission** redn. of regenerative **fuel** powered
co-generation plants with oxy- and SCR catalysts)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**emission** redn. of regenerative **fuel** powered
co-generation plants with oxy- and SCR catalysts)
IT Rape **oil**
RL: TEM (Technical or engineered material use); USES (Uses)
(**emission** redn. of regenerative **fuel** powered
co-generation plants with oxy- and SCR catalysts)
IT 630-08-0, Carbon monoxide, processes 7664-41-7, Ammonia, processes
10102-44-0, Nitrogen oxide (NO2), processes 11104-93-1, Nitrogen oxide,
processes
RL: REM (Removal or disposal); PROC (Process)
(**emission** redn. of regenerative **fuel** powered
co-generation plants with oxy- and SCR catalysts)
RE.CNT 88 THERE ARE 88 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L7 ANSWER 2 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2002:754505 CAPLUS
DN 137:281625
TI Plant extracts-jojoba **oil**-based additives for liquid **fuels** for reduced pollutant **emissions**
IN Jordan, Frederick L.
PA Oryxe Energy International, Inc., USA
SO PCT Int. Appl., 173 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L010-02
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002077131	A2	20021003	WO 2002-US6137	20020226

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,

CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-278011P P 20010322

AB A **fuel** additive suitable for any liq. **fuel**, **coal**, or other hydrocarbon **fuel** consists of an antioxidant (preferably β-carotene), a thermal stabilizer (preferably jojoba **oil** or a C20-22-monounsatd. **fatty acid** ester), and a plant **oil** ext. other than alfalfa **oil** (preferably vetch ext., barley ext., and an ext. from a plant of the Leguminosae family). In addn., the **fuel** additive can contain an oxygenate, esp. chosen from methanol, ethanol, Me tert-Bu ether, Et tert-Bu ether, and tert-amyl Me ether. Addnl. additives that may be present include octane improvers, cetane improvers, detergents, demulsifiers, corrosion inhibitors, metal deactivators, **ignition** accelerators, dispersants, antiknock additives, antioxidants, demulsifiers, etc. The additives can reduce **emissions** and can improve **fuel** economy and engine cleanliness.

ST **fuel** additive plant ext jojoba **oil** beta carotene; gasoline diesel **fuel** additive plant ext; **coal fuel oil** additive plant ext; Leguminosae barley vetch ext liq **fuel** additive

IT **Fatty acids**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C20-22-monounsatd., esters, thermal stabilizers; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT Jet aircraft **fuel**
(additives; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT **Coal**, miscellaneous
RL: MSC (Miscellaneous)
(combustion additives for; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT Barley
Embryophyta
Fabaceae
Vicia
(exts.; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT Chlorophylls, uses
RL: MOA (Modifier or additive use); USES (Uses)
(exts.; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT Lubricating **oil** additives
(for two-cycle engines; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT **Fuels**
(liq., additives; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT Antioxidants
Diesel **fuel** additives
Fuel oil additives
Gasoline additives
Heat stabilizers
(plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT Jojoba **oil**
RL: MOA (Modifier or additive use); USES (Uses)
(thermal stabilizers; plant exts.-jojoba **oil**-based additives for liq. **fuels** for reduced pollutant **emissions**)

IT 7235-40-7, β-Carotene
RL: MOA (Modifier or additive use); USES (Uses)

(antioxidants; plant exts.-jojoba **oil**-based additives for
liq. **fuels** for reduced pollutant **emissions**)
IT 64-17-5, Ethanol, uses 108-88-3, Toluene, uses 637-92-3 994-05-8,
tert-Amyl methyl ether 1634-04-4, Methyl tert-butyl ether
RL: MOA (Modifier or additive use); USES (Uses)
(diluent; plant exts.-jojoba **oil**-based additives for liq.
fuels for reduced pollutant **emissions**)
IT 479-61-8
RL: MOA (Modifier or additive use); USES (Uses)
(exts.; plant exts.-jojoba **oil**-based additives for liq.
fuels for reduced pollutant **emissions**)
IT 67-56-1, Methanol, uses
RL: MOA (Modifier or additive use); USES (Uses)
(plant exts.-jojoba **oil**-based additives for liq.
fuels for reduced pollutant **emissions**)

L7 ANSWER 3 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2002:669053 CAPLUS
DN 137:203825
TI Biodiesel - a growing **fuel** and its marketability
AU Fischer, Jurgen
CS Oelmuehle Leer Connemann GmbH, Leer, Germany
SO Mineraloeltechnik (2002), 47(5), 1-19
CODEN: MTCKAZ; ISSN: 0341-1893
PB Beratungsgesellschaft fuer Mineraloel-Anwendungstechnik
DT Journal; General Review
LA German
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51
AB A review. According to our today's knowledge liq. **energy** sources are the best way to assure mobility. Petroleum products like gasoline, diesel **fuel** and kerosene keep us travelling long distances and make it possible to deliver goods to every place in the world. But restricted crude **oil** resources and environmental problems like the global warming effect are suitable arguments to look for alternative **energy** sources. The most important renewable **energy** sources for transportation purposes are liq. **fuels** based on plant **oils**. Pure plant **oils** are hardly suitable to be used in modern Diesel engines. By using a simple chem. process, the transesterification, **fatty acid** Me esters can be produced which have phys. properties similar to Diesel **fuel** and are commonly known as Biodiesel. Besides the CO2 balance which is significantly better than from Diesel, Biodiesel shows some more advantages. Low soot contents, reduced hydrocarbon **emissions** along with low cancerogenic potential are characteristic for **emissions** from Biodiesel. Low toxicity and biodegradedability are the most effective characteristics which gives Biodiesel the potential as an alternative **fuel** for regions sensitive to ecol. risks. The advantages of Biodiesel could even be better by using an optimized engine, esp. designed for this **fuel**. In particular the structure of particles emitted by Biodiesel driven engines shows a way to achieve extremely low **emission** limits without using expensive exhaust treatment systems. Based on electronic control devices modern **fuel** injection systems like Common-Rail-Injection and Pump-Injector-Units offer a variety of possibilities. Const. and high level quality are basic requirements for **fuels** suitable for cars. Concerning Biodiesel there are existing a no. of national stds. all over Europe including a European draft std. These stds. have been developed in cooperation with the car manufacturers. Approvals and warranties by the car manufacturers are based on these stds. Increasing prodn. capacities, a reliable and sufficient supply of raw materials as well as the most recent market conditions for Biodiesel caused a rapid sales increase over the last months. Supported by enhanced prodn. figures, including new facilities

planned and imported quantities the demand for Biodiesel in Germany in 2001 is expected to be around 600.000 tons.

ST review biodiesel diesel **fuel** substitute

IT Diesel **fuel** substitutes
(biodiesel; growing **fuel** and its marketability)

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TI Biofuels derived from vegetable **oils** and **fats**

AU Knothe, Gerhard; Dunn, Robert O.

CS Agricultural Research Service, National Center for Agricultural Utilization Research, US Department of Agriculture, Peoria, IL, 61604, USA

SO Oleochemical Manufacture and Applications (2001), 106-163. Editor(s): Gunstone, Frank D.; Hamilton, Richard J. Publisher: Sheffield Academic Press, Sheffield, UK.
CODEN: 69CCQZ

DT Conference; General Review

LA English

CC 51-0 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45, 52

AB A review on the use of vegetable **oil**-based diesel **fuels**, particularly in the form of esters (biodiesel). Topics discussed include sources and prodn. of such **fuels**, general comparison of **fuels** from vegetable **oils** and animal **fats**, process economics, regulatory issues, history and development, combustion of and **emissions** from biodiesel **fuels**, properties of biodiesel (e.g., low-temp. properties and storage stability), blending with conventional diesel **fuels**, transesterification, use of waste vegetable **oils**, pyrolyzed vegetable **oils**, use of microemulsions, and outlook for biodiesel **fuels**. Although vegetable **oil**-based **fuels** cannot replace all petroleum-based diesel **fuels**, they play an important role among the alternative **fuels** and contribute to the goal of **energy** independence and security.

ST review diesel **fuel** vegetable **oil** biodiesel; transesterification vegetable **oil** biodiesel review

IT **Fatty acids**, preparation
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(Et esters, biodiesel; biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT **Fatty acids**, preparation
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(Me esters, biodiesel; biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT Transesterification
(biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT Glycerides, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT Diesel **fuel** substitutes
(biodiesel; biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT Diesel **fuel** additives
(cetane improvers, for biodiesel; biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT Combustion
(of biodiesel **fuels**; biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT Thermal decomposition

(of glycerides; biodiesel **fuels** derived from vegetable **oils** and **fats**)

IT **Fats** and Glyceridic **oils**, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(vegetable, waste, glyceride source; biodiesel **fuels** derived from vegetable **oils** and **fats**)

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L7 ANSWER 5 OF 56 CAPLUS
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AN 2001:816820 CAPLUS
DN 135:346706
TI Liquefied gas **fuel** for compression **ignition** engines
IN Tamura, Masamitsu; Goto, Shinichi; Sugiyama, Kouseki; Kajiwara, Masataka; Sagara, Makoto
PA Iwatani International Corporation, Japan
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001083646	A2	20011108	WO 2001-JP3719	20010427
	W: AE, AU, CA, CN, CZ, ID, IN, KR, MX, PL, SG, US, VN				
	RW: BE, DE, ES, FR, GB, IT, NL, SE				
	JP 2001342474	A2	20011214	JP 2000-161506	20000531
	JP 2002012879	A2	20020115	JP 2000-369658	20001205
	JP 2002173691	A2	20020621	JP 2000-369661	20001205
	AU 2001052646	A5	20011112	AU 2001-52646	20010427
PRAI	JP 2000-128839	A	20000428		
	JP 2000-161506	A	20000531		
	JP 2000-369658	A	20001205		
	JP 2000-369661	A	20001205		
	WO 2001-JP3719	W	20010427		

AB Disclosed is a liquefied gas **fuel**, which can reduce **emissions** of air pollutants, such as black smoke, particulate matter, NOx and SOx in an exhaust gas of a compression **ignition** engine. The liquefied gas **fuel** comprises liquefied petroleum gas added with a radical generating agent, a lubricity improving agent and liq. hydrocarbon, or di-Me ether added with the lubricity improving agent.
ST LPG lubricant peroxide additive
IT Alkanes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C8-14, esters; liquefied gas **fuel** for compression **ignition** engines)
IT Alcohols, uses
Fatty acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C8-14; liquefied gas **fuel** for compression **ignition** engines)
IT Petroleum products
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(gases, liquefied; liquefied gas **fuel** for compression **ignition** engines)
IT Petroleum, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(heavy; liquefied gas **fuel** for compression **ignition** engines)
IT Lubricants
Soot
(liquefied gas **fuel** for compression **ignition** engines)
IT Nitrates, uses
RL: CAT (Catalyst use); USES (Uses)
(liquefied gas **fuel** for compression **ignition** engines)
IT Azo compounds
RL: MOA (Modifier or additive use); USES (Uses)
(liquefied gas **fuel** for compression **ignition**

engines)
IT Naphtha
RL: MOA (Modifier or additive use); USES (Uses)
(liquefied gas **fuel** for compression **ignition**
engines)
IT Nitrites
RL: MOA (Modifier or additive use); USES (Uses)
(liquefied gas **fuel** for compression **ignition**
engines)
IT Paraffin **oils**
RL: MOA (Modifier or additive use); USES (Uses)
(liquefied gas **fuel** for compression **ignition**
engines)
IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(liquefied gas **fuel** for compression **ignition**
engines)
IT Kerosene
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(liquefied gas **fuel** for compression **ignition**
engines)
IT Petroleum products
(**oils**; liquefied gas **fuel** for compression
ignition engines)
IT 110-05-4, Di-tert-butyl peroxide
RL: MOA (Modifier or additive use); USES (Uses)
(liquefied gas **fuel** for compression **ignition**
engines)
IT 74-98-6, Propane, processes 106-97-8, Butane, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(liquefied gas **fuel** for compression **ignition**
engines)
IT 11104-93-1, Nitrogen oxide, processes 12624-32-7, Sulfur oxide
RL: REM (Removal or disposal); PROC (Process)
(liquefied gas **fuel** for compression **ignition**
engines)

L7 ANSWER 6 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2001:765380 CAPLUS
DN 136:122538
TI **Emission** reduction of regenerative **fuel** powered co-generation plants
with SCR- and oxidation-catalysts
AU Lachenmaier, J.; Dobiasch, A.; Meyer-Pittroff, R.
CS Lebensmittelindustrie, Technische Universitat Munchen, Freising, D-85350,
Germany
SO Topics in Catalysis (2001), 16/17(1-4), 437-442
CODEN: TOCAFI; ISSN: 1022-5528
PB Kluwer Academic/Plenum Publishers
DT Journal
LA English
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
AB Since the beginning of combustion engine development in this recent
century various different **fuels** have been successfully tested. Diesel
engines have been adapted to **fuels** made from mineral **oils** because of
the rising importance and the cheapness in comparison to other **fuels**.
On the other hand, it is possible to **burn** regenerative **fuels** in
engines and achieve some significant advantages in comparison to fossil
diesel **fuel**. This is, for example, a closed carbon dioxide (CO2) cycle
which causes no green house effect. It is possible to ext. **oil** from
various seeds like rapeseed. It is also possible to **burn** used **oil**

from the food processing industry or waste grease and **oil** from food recycling companies. The great advantages: (1) food recycling **oils** can produce **energy** instead of use as animal food, and (2) as nobody knows exactly the consistency of the collected **oils**, poisonous pollution is possible. These regenerative **fuels** can be **burned** without any further processing in special adapted diesel engines, for example an Elsbett engine, or in precombustion engines with large swept vols. Most researchers focused on operating diesel engines with regenerative **fuels** and reducing the **emissions** caring only about regulated exhaust components. In comparison to these studies it is necessary to learn more about the **emissions** beyond the exhaust regulations. Addnl. **emission** redn. is possible by using an SCR-catalyst (selective catalytic redn.) to reduce the NO2 combined with an oxidn.-catalyst which reduces any kind of oxidizable **emissions**. The TU Munchen, Lehrstuhl fur Energie- und Umwelttechnik der Lebensmittelindustrie, operates a small co-generation plant with the ability of analyzing the std. **emission** components (CO, NO2, HC, particles, CO2, O2) and unregulated components (SO2, NH3, polycyclic arom. hydrocarbons (PAH), aldehyde, ketone). The **emissions** show some significant differences in comparison to fossil diesel **fuel** which is caused by the diversity of each **fuel**. Results of an investigation on four different **fuels** (wastefat Me ester (WME), rapeseed Me ester (RME), rapeseed **oil** and diesel **fuel**) **burned** in a small co-generation plant with a SCR- and oxidn.-catalyst will be presented. A comparison to the **emissions** before and after the catalysts will be shown addnl. to the results of the different redn. potential of diesel **fuel**, Me ester or untreated **oils**. The combination of regenerative **fuel** and catalyst shows good potential for reducing the **emissions**. Furthermore the use of regenerative **fuels** is a sustainable prodn. of **energy** with an overall efficiency of almost 90%. Regenerative **fuels** based on vegetable **oils** and waste **fat** are a valuable form of **energy** and have some significant advantages in comparison to diesel **fuel**, like an almost closed carbon dioxide cycle, rapid biol. decompn. and lower CO, HC and particle **emissions**. Regenerative **fuels** should also meet min. stds. discussed in the paper to avoid the risk of engine damage and to reduce **emissions**.

ST regenerative **fuel** combustion exhaust treatment

IT **Fats** and Glyceridic **oils**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Me esters; **emission** redn. of regenerative **fuel** powered co-generation plants with SCR- and oxidn.-catalysts)

IT Diesel **fuel** substitutes
(biodiesel; **emission** redn. of regenerative **fuel** powered co-generation plants with SCR- and oxidn.-catalysts)

IT Diesel **fuel**
Exhaust gases (engine)
(**emission** redn. of regenerative **fuel** powered co-generation plants with SCR- and oxidn.-catalysts)

IT Hydrocarbons, processes
RL: REM (Removal or disposal); PROC (Process)
(**emission** redn. of regenerative **fuel** powered co-generation plants with SCR- and oxidn.-catalysts)

IT Rape **oil**
RL: TEM (Technical or engineered material use); USES (Uses)
(**emission** redn. of regenerative **fuel** powered co-generation plants with SCR- and oxidn.-catalysts)

IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, esters; **emission** redn. of regenerative **fuel** powered co-generation plants with SCR- and oxidn.-catalysts)

IT 630-08-0, Carbon monoxide, processes 10024-97-2, Nitrous oxide, processes 10102-44-0, Nitrogen dioxide, processes 11104-93-1, Nitrogen

oxide, processes
RL: REM (Removal or disposal); PROC (Process)
(**emission** redn. of regenerative **fuel** powered
co-generation plants with SCR- and oxidn.-catalysts)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

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(11) May, H; Neuere Untersuchungen uber die Umweltvertraglichkeit und die Dauerstandfestigkeit von Vorkammer- und Direkteinpritzenden Dieselmotoren bei Betrieb mit Rapsol und Rapsolmethylester 1992
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L7 ANSWER 7 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 2001:466265 CAPLUS
DN 135:213297
TI Wear assessment in a biodiesel fuelled compression **ignition** engine
AU Agarwal, Avinash Kumar; Bijwe, Jayashree; Das, L. M.
CS Engine Research Center, University of Wisconsin, Madison, WI, 53706, USA
SO ICE (American Society of Mechanical Engineers) (2001), 36-3(Engine Systems: Lubrication, Wear, Components, System Dynamics, and Design), 29-37
CODEN: ICEIEG; ISSN: 1066-5048
PB American Society of Mechanical Engineers
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51

AB Biodiesel is prepd. using linseed **oil** and methanol by the process of transesterification. Use of linseed **oil** Me ester (LOME) in compression **ignition** engine was found to develop a highly compatible engine-**fuel** system with low **emission** characteristics. Two similar engines were operated using optimum biodiesel blend and mineral diesel **oil** resp. These were subjected to long-term endurance tests. Lubricating **oil** samples drawn from both engines after a fixed interval were subjected to elemental anal. Quantification of various metal debris concns. was done by at. absorption spectroscopy (AAS). Wear metals were found to be about 30% lower for biodiesel-operated engine system. Lubricating **oil** samples were also subjected to ferrog. indicating lower wear debris concns. for biodiesel-operated engine. The addnl. lubricating property of LOME present in the **fuel** resulted in lower wear and improved life of moving components in biodiesel-fuelled engine. However, this needed exptl. verification and quantification. A series of expts. were thus conducted to compare the lubricity of various concns. of LOME in biodiesel blends. Long duration tests were conducted using reciprocating motion in SRV optimal wear tester to evaluate the coeff. of friction, specific wear

rates, etc. The extent of damage, coeff. of friction, and specific wear rates decreased with increase in the percentage of LOME in the biodiesel blend. SEM was conducted on the surfaces exposed to wear. The disk and pin using 20% biodiesel blend as lubricating **oil** showed lesser damage compared to the one subjected to diesel **oil** as lubricating fluid, confirming addnl. lubricity of biodiesel.

ST linseed **oil** Me ester biodiesel; engine wear lubricating **oil** biodiesel

IT Diesel **fuel** substitutes
(biodiesel; wear assessment in a biodiesel fuelled compression **ignition** engine)

IT Lubricating **oils**
(diesel; wear assessment in a biodiesel fuelled compression **ignition** engine)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(linseed-**oil**, Me esters; wear assessment in a biodiesel fuelled compression **ignition** engine)

IT Wear
(wear assessment in a biodiesel fuelled compression **ignition** engine)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L7 ANSWER 8 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 2001:309850 CAPLUS

DN 134:313356

TI Alternative diesel **fuels** from vegetable **oils** and animal **fats**

AU Dunn, Robert O.; Knothe, Gerhard

CS Oil Chemical Research, Agricultural Research Service (ARS), National Center for Agricultural Utilization Research (NCAUR), U.S. Department of Agriculture (USDA), Peoria, IL, 61604, USA

SO Journal of Oleo Science (2001), 50(5), 415-426
CODEN: JOSOAP; ISSN: 1345-8957

PB Japan Oil Chemists' Society

DT Journal

LA English

CC 51-9 (Fossil Fuels, Derivatives, and Related Products)

AB Biodiesel, defined as the mono-alkyl esters of **fatty acids** derived from vegetable **oils** or animal **fats**, is a strong candidate alternative **fuel** for combustion in compression **ignition** (diesel) engines. With respect to petroleum middle distillates, biodiesel has superior cetane no. and lubricity characteristics, has comparable heats of combustion and kinematic viscosities, and is non-flammable making it safer to store and handle. Biodiesel is renewable and can help reduce dependence upon imported petroleum. Biodiesel is environmentally friendly because it is

readily biodegradable and its combustion reduces most harmful exhaust **emissions**, including carbon monoxide, unburned hydrocarbons, particulate matter, and polyarom. hydrocarbons. In the United States, the **Energy** Policy Act (EPACT) of 1992 and Clean Air Act with its subsequent amendments have combined to help establish a favorable atm. for development of biodiesel; however, many technol. hurdles must be removed before widespread commercialization will be feasible. During cooler weather, biodiesel "gels" at temps. near freezing (0°C) compared with - 15 to - 17°C for conventional diesel **fuel**. Another concern for biodiesel is its long-term storage stability with respect to oxidative degrdn. Finally, most reports indicate biodiesel does not significantly reduce nitrogen oxides (NOx) **emissions**. This is a particular concern because NOx may react in the atm. to form ozone, a component of smog. This work reviews recent progress in the development of biodiesel with emphasis on removing these technol. hurdles.

ST biodiesel **fuel** property vegetable **oil** animal **fat**; combustion biodiesel compression **ignition** engine

IT **Fats** and Glyceridic **oils**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(animal; properties of alternative diesel **fuels** from vegetable **oils** and animal **fats**)

IT Air pollution
(biodiesel from vegetable **oils** and animal **fats** in relation to)

IT Diesel **fuel**
(biodiesel; properties of alternative diesel **fuels** from vegetable **oils** and animal **fats**)

IT Lubrication
(lubricity of biodiesel)

IT Cetane number
(of biodiesel)

IT Combustion
(of biodiesel in compression **ignition** engines)

IT **Fats** and Glyceridic **oils**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(vegetable; properties of alternative diesel **fuels** from vegetable **oils** and animal **fats**)

RE.CNT 113 THERE ARE 113 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L7 ANSWER 9 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2001:184652 CAPLUS
DN 134:328979
TI **Emission** testing on a biodiesel produced from waste animal **fats**
AU Koo, B. C. P.; Leung, D. Y. C.
CS Department of Mechanical Engineering, The University of Hong Kong, Hong Kong, Peop. Rep. China
SO Sustainable Energy and Environmental Technologies, Proceedings of the Asia-Pacific Conference, 3rd, Hong Kong, China, Dec. 3-6, 2000 (2001), Meeting Date 2000, 242-246. Editor(s): Hu, Xijun; Yue, Po Lock. Publisher: World Scientific Publishing Co. Pte. Ltd., Singapore, Singapore.
CODEN: 69AZSS
DT Conference
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 60
AB Biodiesel is a clean-**burning fuel** made from renewable sources. Technologies to produce biodiesel from neat vegetable **oils**, have been developed elsewhere for sometimes and biodiesel **fuel** is com. available in several countries including USA and Germany. The feasibility of using waste cooking **oil** (animal **fats**/vegetable **oils**) as feedstock of biodiesel was studied by us in 1999. This study was initiated due to the large amt. of waste **oil** generated by local restaurants, posing a heavy burden on the trade as well as on the municipal wastewater treatment

facilities. Preliminary tests were conducted on a 240 HP Cummins bus engine and a 5-ton lorry. The results of the tests were encouraging - smoke and air pollutants were reduced without any significant power penalty. A larger scale and comprehensive study on the characteristics of biodiesel on various engines is currently undertaken. In this paper, results on a diesel generator with different biodiesel/diesel blending ratios were presented. Air pollutants, such as nitrogen oxides and carbon monoxide, were measured by a combustion analyzer. The power output and **fuel** consumption were also recorded during the measurement.

ST air pollution exhaust biodiesel waste **fat**; animal waste **fat** restaurant transesterification biodiesel

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(Me esters; **emission** testing on a biodiesel produced from waste animal **fats**)

IT **Fats** and Glyceridic **oils**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(animal, waste, transesterification of; **emission** testing on a biodiesel produced from waste animal **fats**)

IT Diesel **fuel** substitutes
(biodiesel; **emission** testing on a biodiesel produced from waste animal **fats**)

IT Combustion
Transesterification
(**emission** testing on a biodiesel produced from waste animal **fats**)

IT Air pollution
(exhaust; **emission** testing on a biodiesel produced from waste animal **fats**)

IT **Fats** and Glyceridic **oils**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(vegetable; **emission** testing on a biodiesel produced from waste animal **fats**)

IT 630-08-0, Carbon monoxide, occurrence 11104-93-1, Nitrogen oxide nox, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emission** testing on a biodiesel produced from waste animal **fats**)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L7 ANSWER 10 OF 56 CAPLUS

Full Text

AN 2001:145332 CAPLUS

DN 134:165483

TI **Fuel** for compression **ignition** engines

IN Andel, Miroslav
PA Czech Rep.
SO Czech Rep., 15 pp.
CODEN: CZXXED
DT Patent
LA Czech
IC ICM C10L001-08
ICS C10L001-10; C10L001-14
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 52
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CZ 286005	B6	19991215	CZ 1993-1781	19930830

AB **Fuel** for diesel engines consists of 10-90 rape **oil** Me ester (preferably 30-40) and 10-90 wt.% S-free middle petroleum distillate (preferably 60-70%). No harmful **emissions** are generated during combustion.
ST alternate **fuel** diesel engine
IT **Fuels**
(alternative; for diesel engines)
IT Diesel **fuel** substitutes
(biodiesel; rape **oil** Me ester)
IT Diesel **fuel**
(blend with rape **oil** Me ester)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters; rape **oil** Me ester as **fuel** for diesel engines)

L7 ANSWER 11 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2000:903534 CAPLUS
DN 134:268663
TI The potential of using vegetable **oil fuels** as **fuel** for diesel engines
AU Altin, R.; Cetinkaya, S.; Yucesu, H. S.
CS Projects Coordination Unit, Ministry of Education, Ankara, 06500, Turk.
SO Energy Conversion and Management (2000), Volume Date 2001, 42(5), 529-538
CODEN: ECMADL; ISSN: 0196-8904
PB Elsevier Science Ltd.
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 59
AB Vegetable **oils** are produced from numerous **oil** seed crops. While all vegetable **oils** have high **energy** content, most require some processing to assure safe use in internal combustion engines. Some of these **oils** already have been evaluated as substitutes for diesel **fuels**. The effects of vegetable **oil fuels** and their Me esters (raw sunflower **oil**, raw cottonseed **oil**, raw soybean **oil** and their Me esters, refined corn **oil**, distd. opium poppy **oil** and refined rapeseed **oil**) on a direct injected, four stroke, single cylinder diesel engine performance and exhaust **emissions** was investigated in this paper. The results show that from the performance viewpoint, both vegetable **oils** and their esters are promising alternatives as **fuel** for diesel engines. Because of their high viscosity, drying with time and thickening in cold conditions, vegetable **oil fuels** still have problems, such as flow, atomization and heavy particulate **emissions**.
ST vegetable **oil** methyl ester diesel **fuel**; exhaust air pollution diesel vegetable **oil**; sunflower cottonseed soybean corn **oil** ester; opium poppy rapeseed **oil** diesel **fuel**
IT Diesel **fuel** substitutes

(biodiesel; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(cottonseed-**oil**, Me esters; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT Air pollution
(exhaust; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT **Fats** and Glyceridic **oils**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(poppyseed; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT Atomizing (spraying)
Combustion
(potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT Corn **oil**
Cottonseed **oil**
Rape **oil**
RL: NUU (Other use, unclassified); USES (Uses)
(potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(rape-**oil**, Me esters; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(soya, Me esters; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(sunflower-**oil**, Me esters; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT **Fats** and Glyceridic **oils**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(vegetable; potential of using vegetable **oil fuels** as **fuel** for diesel engines)

IT 630-08-0, Carbon monoxide, occurrence 10102-44-0, Nitrogen dioxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(potential of using vegetable **oil fuels** as **fuel** for diesel engines)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L7 ANSWER 12 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2000:712590 CAPLUS
DN 133:254844
TI Reuse of used edible **oils/fats** in the energetic-technological area. A method and its evaluation
AU Suss, Ananta Andy Anggraini
CS Weimar, Germany
SO Fortschritt-Berichte VDI, Reihe 15: Umwelttechnik (1999), 219, I-III, V, VII-XIV, 1-193
CODEN: FRUMFB; ISSN: 0178-9589
PB VDI Verlag GmbH
DT Journal; General Review
LA German
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 17
AB A discussion and review with 166 refs. In the development of alternative **fuel** sources, used cooking **oils** have gained a high value as raw material for biofuel prodn. Although used cooking **oils** seem as animal feedstuffs economically more attractive, their toxic components restrict their use in animal nutrition sectors. Therefore, their use in the energetic-tech. sectors offers an environmentally far more attractive form of disposal and discovers simultaneously renewable **energy** sources. Because of their tech. and phys. properties, used cooking **oils** can not be used as direct replacements for diesel **fuel**. The suitability of used cooking **oil** as a **fuel** for diesel engines can be improved by appropriate transesterification. The unknown compn. and varying quality of used cooking **oils**, however, cause some problems on their use as a primary material for methylester **fuel** prodn. To realize this concept, it is necessary to develop and to optimize a technol., which is able to convert the used cooking **oils** into high quality Me ester **fuel**. Through the developed transesterification technol., used cooking **oil** methylesters (AME) can be produced in a quality close to existing stds. without expensive purifn. steps of the ester. Used cooking **oils** were transesterified by reaction at temps. between 20 and 70°C, on normal pressure, without excess methanol and under basic conditions. The catalyst, potassium hydroxide, should be exactly measured to adapt the transesterification process. The content of free **fatty acid** of raw material should not be more than 10% and the upper limit of impurities like mineral **oil** (from fossil resources) is 7.5%. If AME is used at temps. over 20°C, the animal **fat** content of the raw material can be accepted till 30%. **Fuel** properties of AME are remarkably similar to diesel **fuel**. Thus AME is suitable as **fuel** for diesel engines and for heating systems. Its m.p., however, is so high, that it can be used only at relatively high temps. To overcome this problem, AME needs to be modified to keep it in liq. form under colder conditions. A simple redn. of m.p. can be achieved by blending it with diesel **fuel**. This can be approached also by adding **fuel** additives. Heating the **fuel** might promise a possible soln. of this problem too. Darkness, lower temps. and anaerobic storage are suggested to guarantee a const. quality of AME for long term. It is also recommended, that storage period should not be longer than one year. The comparison between AME and rapeseed **oil** and its derivate showed that AME prodn. is less expensive and gives better **energy** balance. The other advantage is that there are no repeated agricultural activities in the prodn. steps, so that N2O-**emissions** from nitrogen decompn. are not produced. Just as rapeseed **oil**, the sulfur content of AME is basically zero. Therefore, no SO2-**emission** was obsd. during its **burning** in diesel engine and in a heating system. There was found also a redn. in particle **emissions**.

ST review edible **oil** **fat** reuse biofuel biodiesel
IT Diesel **fuel** substitutes
(biodiesel; reuse of used edible **oils/fats** in energetic-technol.)
IT **Fuels**
(biofuels; reuse of used edible **oils/fats** in energetic-technol.)
IT Diesel **fuel** substitutes
Energy balance
Recycling
(reuse of used edible **oils/fats** in energetic-technol.)
IT Edible **oils**
Fats and Glyceridic **oils**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(reuse of used edible **oils/fats** in energetic-technol.)
RE.CNT 166 THERE ARE 166 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L7 ANSWER 13 OF 56 CAPLUS
Full Text
AN 2000:511642 CAPLUS
DN 133:225280
TI Characterization of new **fuel** qualities
AU Nylund, Nils-Olof; Aakko, Paivi
CS Technical Research Centre of Finland, Finland
SO Society of Automotive Engineers, [Special Publication] SP (2000), SP-1545(State of Alternative Fuel Technologies 2000), 97-106
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 52

AB Many standardized tests for evaluating **fuel** properties have originally been designed for screening straight-run hydrocarbon products. In the case of **fuels** blended with new components or treated with additives, the traditional test methods may give misleading results. The objective of the work was to evaluate the correlation between the results of standardized testing and of the real-life serviceability of new diesel **fuel** qualities. Combustion properties, properties affecting exhaust **emissions**, low-temp. performance and diesel **fuel** lubricity were studied. The test **fuel** matrix comprised of typical conventional hydrocarbon diesel **fuels**, low-**emission** hydrocarbon **fuels**, rapeseed and tall **oil** esters and ethanol-blended diesel **fuels**. The base **fuels** were blended with a cetane improver additive and some **fuels** also with a cold flow improver additive. Combustion and **emission** tests were carried out with a heavy-duty bus engine and a diesel passenger car. A farm tractor engine was used for cold-start testing. The traditional cetane no. measurement described well **ignition** delay of the heavy-duty engine at low and medium loads, but was more suitable for hydrocarbon

fuels than for alternative diesel **fuels**. Cetane no. measurement overestimated the effect of cetane improver, esp. for biodiesels. HFRR tests show that esters are effective lubricity additives. The cold startability of blends contg. esters improved with cold flow additives. The **ignition** properties of ethanol blended diesel **fuel** improved significantly when **ignition** improver additive was used.

ST standardized test diesel **fuel** substitute; rapeseed tall **oil** ester ethanol **fuel**

IT Diesel **fuel** substitutes
(biodiesel; characterization of substitute diesel **fuel** qualities)

IT Cetane number
Combustion
Ignition
(characterization of substitute diesel **fuel** qualities)

IT Air pollution
(exhaust; characterization of substitute diesel **fuel** qualities)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(rape-**oil**, Me esters; characterization of substitute diesel **fuel** qualities)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(tall-**oil**, Me esters; characterization of substitute diesel **fuel** qualities)

IT 64-17-5, Ethanol, uses
RL: NUU (Other use, unclassified); USES (Uses)
(characterization of substitute diesel **fuel** qualities)

IT 630-08-0, Carbon monoxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(characterization of substitute diesel **fuel** qualities)

L7 ANSWER 14 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 2000:511635 CAPLUS

DN 133:226873

TI Optimising tractor C1 engines for biodiesel operation

AU Bouche, Thomas; Hinz, Michael; Pittermann, Roland; Herrmann, Martin

CS WTZ fur Motoren- und Maschinenforschung Rosslau GmbH, Germany

SO Society of Automotive Engineers, [Special Publication] SP (2000), SP-1545(State of Alternative Fuel Technologies 2000), 57-64
CODEN: SAESA2; ISSN: 0099-5908

PB Society of Automotive Engineers

DT Journal

LA English

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 47, 51

AB This paper reports on test bed and field studies to adapt and optimize two John Deere tractor engines for **fatty acid** Me ester (biodiesel). **Emissions** were measured according to the international std. DIN EN ISO 8178-4, cycle C1, which is relevant for tractor engines. The results were compared to diesel **fuel** with and without optimization of the engine for biodiesel. It could be shown that total particulate **emissions** did not change much with biodiesel but there was a strong increase in the sol. org. fraction while soot strongly decreased simultaneously. Therefore, in order to take full advantage of biodiesel, the engines were also equipped with an oxidn. catalyst. Compared to diesel **fuel** operation of the engines with an oxidn. catalyst, the **emissions** of hydrocarbons, carbon monoxide, and particulates could be reduced with biodiesel, whereas nitrogen oxides increased slightly. During a 600 h durability run and a tractor field test, no **fuel**-related problems occurred, and a final

engine inspection showed components still to be in an excellent condition. The results of engine **oil** analyses during both durability tests are presented.

ST tractor engine optimization biodiesel operation **emission** control

IT Tractors
(John Deer; optimizing tractor C1 engines for biodiesel operation)

IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Me esters, biodiesel **fuel**; optimizing tractor C1 engines for biodiesel operation)

IT Diesel **fuel** substitutes
(biodiesel; optimizing tractor C1 engines for biodiesel operation)

IT Air pollution
(control; optimizing tractor C1 engines for biodiesel operation)

IT Soot
(**emission** of; optimizing tractor C1 engines for biodiesel operation)

IT Hydrocarbons, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emission** of; optimizing tractor C1 engines for biodiesel operation)

IT Air pollution
(exhaust; optimizing tractor C1 engines for biodiesel operation)

IT Standards, legal and permissive
(for exhaust **emissions**, compliance with; optimizing tractor C1 engines for biodiesel operation)

IT Diesel engines
Exhaust particles (engine)
Optimization
Oxidation catalysts
(optimizing tractor C1 engines for biodiesel operation)

IT Internal combustion engines
(spark-**ignition**; optimizing tractor C1 engines for biodiesel operation)

IT 630-08-0, Carbon monoxide, occurrence 11104-93-1, Nitrogen oxide (NOx), occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emission** of; optimizing tractor C1 engines for biodiesel operation)

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD

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Umwelteffekte 1998
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L7 ANSWER 15 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2000:433256 CAPLUS
DN 133:61158
TI Lipid vesicle-based **fuel** additives and liquid **energy** sources containing same
IN Mathur, Rajiv
PA Igen, Inc., USA
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C10L001-14
ICS C10L001-32
NCL 044301000
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6080211	A	20000627	US 1999-252546	19990219
	WO 2000049108	A1	20000824	WO 2000-US4126	20000217

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	EP 1159377	A1	20011205	EP 2000-913511	20000217

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2002537438	T2	20021105	JP 2000-599839	20000217
	US 6371998	B1	20020416	US 2000-602732	20000626
PRAI	US 1999-252546	A	19990219		
	WO 2000-US4126	W	20000217		

AB Liq. **energy** sources, e.g., liq. **fuels** comprising lipid vesicles having **fuel** additives such as water are disclosed herein. The liq. **energy** sources, methods for prepn., and methods of enhancing engine performance disclosed herein employing the lipid vesicles result in enhanced **fuel** efficiency and/or lowered engine **emissions**. The invention further relates to liq. **energy** sources contg. such additives which further comprise a polymeric dispersion assistant, which reduces the interfacial tension and coalescence of vesicles during dispersion process and storage, and thereby provide transparent looks to the liq. **energy** source.
ST liq **fuel** lipid vesicle manuf
IT **Fuels**
(alternative; lipid vesicle-based **fuel** additives and liq. **energy** sources contg. same)
IT Diesel **fuel** substitutes
(biodiesel; lipid vesicle-based **fuel** additives and liq. **energy** sources contg. same)
IT **Fatty acids**, uses

RL: MOA (Modifier or additive use); USES (Uses)
(esters; lipid vesicle-based **fuel** additives and liq.
energy sources contg. same)

IT Alcohols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fatty; lipid vesicle-based **fuel** additives and liq.
energy sources contg. same)

IT Diesel **fuel**
Dispersion (of materials)
Fuel additives
Jet aircraft **fuel**
Vesicles (colloidal)
Waters
(lipid vesicle-based **fuel** additives and liq. **energy**
sources contg. same)

IT Glycosides
Lipids, uses
Phosphatidic acids
Phosphatidylserines
Soybean **oil**
RL: MOA (Modifier or additive use); USES (Uses)
(lipid vesicle-based **fuel** additives and liq. **energy**
sources contg. same)

IT Gasoline
RL: TEM (Technical or engineered material use); USES (Uses)
(lipid vesicle-based **fuel** additives and liq. **energy**
sources contg. same)

IT Kerosene
RL: TEM (Technical or engineered material use); USES (Uses)
(lipid vesicle-based **fuel** additives and liq. **energy**
sources contg. same)

IT **Fuels**
(liq.; lipid vesicle-based **fuel** additives and liq.
energy sources contg. same)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(oleylamines and stearylamines; lipid vesicle-based **fuel**
additives and liq. **energy** sources contg. same)

IT Sterols
RL: MOA (Modifier or additive use); USES (Uses)
(phytosterols; lipid vesicle-based **fuel** additives and liq.
energy sources contg. same)

IT **Fatty acids**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(soya, Me esters; lipid vesicle-based **fuel** additives and liq.
energy sources contg. same)

IT 50-23-7, Hydrocortisone 57-10-3, Palmitic acid, uses 57-11-4, Stearic acid, uses 57-88-5, Cholesterol, uses 57-88-5D, Cholesterol, derivs. 64-17-5, Ethanol, uses 94-13-3, Propyl paraben 99-76-3, Methyl paraben 108-10-1, Methyl isobutyl ketone 112-80-1, Oleic acid, uses 124-28-7, Dimethylstearyl amine 143-02-2, Cetyl sulfate 143-07-7, Lauric acid, uses 302-01-2, Hydrazine, uses 1323-39-3, Propylene glycol stearate 1323-83-7, Glycerol distearate 2197-63-9, Dicetyl phosphate 7722-84-1, Hydrogen peroxide, uses 9005-00-9, STEARETH-10 25618-55-7, Polyglycerol 27195-16-0, Sucrose distearate 27638-00-2, Glyceryl dilaurate 106392-12-5, Polyoxyethylene-polyoxypropylene block copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(lipid vesicle-based **fuel** additives and liq. **energy**
sources contg. same)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
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(2) Feuerman; US 4158551 1979 CAPLUS
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(5) Hayes; US 4793826 1988 CAPLUS
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(7) Krivohlavek; US 5505877 1996 CAPLUS
(8) Mathur; US 5643600 1997 CAPLUS
(9) Mezei; US 4485054 1984 CAPLUS
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(11) Rivas; US 5725609 1998 CAPLUS
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(13) Scifoni; US 4499267 1985 CAPLUS
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(21) Wallach; US 5628936 1997 CAPLUS
(22) Yiournas; US 4895452 1990 CAPLUS

L7 ANSWER 16 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2000:410393 CAPLUS
DN 133:19936
TI **Fuel** for compression **ignition** engines
IN Andel, Miroslav
PA Czech Rep.
SO Czech Rep., 24 pp.
CODEN: CZXXED
DT Patent
LA Czech
IC ICM C10L001-08
ICS C10L001-18; C10L001-16
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 52
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CZ 285470	B6	19990811	CZ 1994-762	19940331

AB **Fuel** for diesel engines consists of 10-90 (preferably 30-40) rapeseed **oil** Me ester and 10-90 wt.% (preferably 60-70%) petroleum fraction with a mean distn. temp. of 200.4° and low contents of S and arom. compds. The **fuel** is bio-degradable and does not generate harmful **emissions** during combustion.
ST diesel **fuel** rape **oil** methyl ester
IT Diesel **fuel**
(modified with rapeseed **oil** Me ester)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters; in **fuel** for compression **ignition** engines)

L7 ANSWER 17 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2000:400052 CAPLUS
DN 133:47990
TI **Energy** consumption and exhaust **emissions** in mechanized timber harvesting operations in Sweden
AU Athanassiadis, D.
CS Department of Silviculture, Faculty of Forestry, Division of Forest

Technology, Swedish University of Agricultural Sciences, Umea, 90183,
Swed.

SO Science of the Total Environment (2000), 255(1-3), 135-143
CODEN: STENDL; ISSN: 0048-9697
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
CC 59-2 (Air Pollution and Industrial Hygiene)

AB The study presents an estn. of the **energy** input and the amt. of **emissions** to air due to **fuel**, chainsaw and hydraulic **oil** consumption by heavy duty diesel engine vehicles operating in forest logging operations in Sweden. Exhaust concns. are given for carbon dioxide, carbon monoxide, nitrogen oxides, hydrocarbons and particulate matter. Three **fuel** types (rapeseed Me ester, environmental class 1 and environmental class 3 diesel **fuels**) and two types of lubricating base **oil** (mineral- and vegetable-based) were examd. **Energy** input per unit of timber prodn. (m3ub) was 82 MJ, 11% of which was due to **energy** consumption during the prodn. phase of the **fuel**. **Emissions** during the whole life cycle of the **fuels** and the base **oils** are included in the study. The highest CO2 and NOx **emissions** occurred when rapeseed Me ester was used as **fuel** together with rapeseed as base **oil** for chainsaw and hydraulic **oil**. The highest HC and CO **emissions** occurred when environmental class 3 diesel **fuel** was used.

ST timber harvesting **energy** consumption exhaust **emission**

IT Exhaust gases (engine)
(diesel; **energy** consumption and exhaust **emissions** in mechanized timber harvesting in Sweden)

IT Diesel **fuel**
Energy
Lubricating **oils**
Wood
(**energy** consumption and exhaust **emissions** in mechanized timber harvesting in Sweden)

IT Hydrocarbons, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**energy** consumption and exhaust **emissions** in mechanized timber harvesting in Sweden)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(rape-**oil**, Me esters; **energy** consumption and exhaust **emissions** in mechanized timber harvesting in Sweden)

IT 124-38-9, Carbon dioxide, occurrence 630-08-0, Carbon monoxide, occurrence 11104-93-1, Nitrogen oxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**energy** consumption and exhaust **emissions** in mechanized timber harvesting in Sweden)

RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L7 ANSWER 18 OF 56 CAPLUS

Full Text

AN 1999:792645 CAPLUS

DN 132:66380

TI Sunflower methyl ester as a **fuel** for automobile diesel engines

AU Moreno, F.; Munoz, M.; Morea-Roy, J.

CS Laboratorio de Motores, Departamento de Ingenieria Mecanica, Centro Politecnico Superior, Universidad de Zaragoza, Maria de Luna, Zaragoza, 50015, Spain

SO Transactions of the ASAE (1999), 42(5), 1181-1185
CODEN: TAAEAJ; ISSN: 0001-2351

PB American Society of Agricultural Engineers

DT Journal

LA English

CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45, 52, 59

AB Results were presented for tests on an automobile diesel engine running on sunflower **oil** Me ester (SME), either pure and mixed (25-75 wt.%) with diesel **fuel**. Engine test bench studies were carried out in order to obtain comparison measurements of torque, power, specific **fuel** consumption, and pollutant **emissions**. No noticeable power loss was obsd., compared with pure diesel **fuel**, for **fuel** mixts. contg. 25-75 wt.% SME, although a slight loss (1.5%) of power was obsd. with pure SME. **Emissions** of unburned hydrocarbons decreased when using pure SME or SME mixts.; the NOx **emissions** decreased when using SME-diesel **fuel** mixts. up to 85% SME. NOx **emissions** were 5% higher (compared with pure diesel **fuel**) when pure SME was used.

ST sunflower **oil** methyl ester diesel **fuel**; hydrocarbon **emission** sunflower **oil** methyl ester diesel; nitrogen oxide sunflower **oil** methyl

ester diesel
IT Hydrocarbons, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emissions**; engine test bench studies of automobile diesel engines **burning** sunflower **oil** Me ester substitute)
IT Diesel **fuel** substitutes
(engine test bench studies of automobile diesel engines **burning** sunflower **oil** Me ester substitute)
IT Combustion
(of sunflower **oil** Me esters; engine test bench studies of automobile diesel engines **burning** sunflower **oil** Me ester substitute)
IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(sunflower-**oil**, Me esters, diesel **fuel** substitute; engine test bench studies of automobile diesel engines **burning** sunflower **oil** Me ester substitute)
IT 630-08-0, Carbon monoxide, occurrence 11104-93-1, Nitrogen oxide (NOx), occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emissions**; engine test bench studies of automobile diesel engines **burning** sunflower **oil** Me ester substitute)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L7 ANSWER 19 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1999:630353 CAPLUS
DN 131:261738
TI Vegetable **oils** for biofuels versus surfactants. An ecological comparison for **energy** and greenhouse gases
AU Patel, Martin; Reinhardt, Guido A.; Zemanek, Guido
CS Fraunhofer Institute Systems Innovation Research, Karlsruhe, D-76139, Germany
SO Fett/Lipid (1999), 101(9), 314-320
CODEN: FELIFX; ISSN: 0931-5985
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 46, 52
AB The use of vegetable **oils** as **energy** carriers and for the prodn. of chems. is compared. The bio-based **energy** carriers analyzed are rapeseed **oil**, rapeseed **oil** Me ester, and palm **oil** Me ester, all of which can be used as substitutes for diesel **fuel**. The chems. studied are surfactants. Surfactants can be produced from plant-based feedstocks (oleochem. surfactants) and from petrochems. The various options are studied with regard to two ecol. indicators, i.e. the consumption of finite **energy** resources and the global warming potential. Plant-based sources show clear advantages when compared with their fossil

counterparts. The transesterified types of biofuels are more advantageous than pure vegetable **oils**. The conservation of finite **energy** and redn. in **emissions** of greenhouse gases are higher if vegetable **oils** are used as a feedstock to produce oleochem. surfactants compared to their use as biofuels. Comprehensive life-cycle analyses must be carried out in order to det. whether these results can also be applied to other ecol. indicators. The results support developing strategic goals for bio-based feedstocks, including quantity and cost targets.

ST environmental impact vegetable **oil** biofuel comparison surfactant; **energy** conservation greenhouse effect vegetable **oil** biofuel surfactant

IT Sulfonates
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(alkanesulfonates, secondary; ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT **Fuels**
(biofuels; ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT Diesel **fuel** substitutes
Energy conservation
Greenhouse gases
Surfactants
(ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT Sulfates, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT Rape **oil**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT **Fatty acids**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(esters, palm **oil**, Me esters; ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT Alcohols, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(ethoxylated; ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT Climate
(greenhouse effect; ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT **Fats** and Glyceridic **oils**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(vegetable; ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse gases)

IT 98-11-3D, Benzenesulfonic acid, alkyl derivs., linear, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(ecol. comparison of vegetable **oils** for biofuels vs. surfactants regarding **energy** conservation and greenhouse

gases)
IT 74-82-8, Methane, occurrence 124-38-9, Carbon dioxide, occurrence
10024-97-2, Nitrogen oxide (N2O), occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(ecol. comparison of vegetable **oils** for biofuels vs.
surfactants regarding **energy** conservation and greenhouse
gases)
IT 192391-56-3, RME
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(ecol. comparison of vegetable **oils** for biofuels vs.
surfactants regarding **energy** conservation and greenhouse
gases)
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L7 ANSWER 20 OF 56 CAPLUS
Full Text
AN 1999:352381 CAPLUS
DN 131:90083
TI Conversion of vegetable **oils** to diesel **fuel**
AU Kotowski, Wlodzimierz; Fechner, Wolfgang
CS Inst. Ciezkiej Syntezy Org., Politech. Opolska, Kedzierzyn-Kozle, Pol.
SO Karbo (1999), 44(2), 69-74
CODEN: KARBFZ
PB Wiadomosci Gornicze Sp. z o.o.
DT Journal
LA Polish
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45
AB A technol. for processing rape **oil** into an ecol. **oil** for Otto engines

has been described. It was characterized several operations concerning the processing of gas **oil** of petroleum origin as well as the processing of vegeteable **oil** into an ecol. engine **fuel**. **Energy** balances for these processes and accompanied **emissions** of toxic substances into atm. have been presented.

ST rape **oil** transesterification methanol diesel **fuel**; vegeteable **oil** transesterification methanol diesel **fuel**

IT Transesterification
(Me; conversion of vegetable **oils** to diesel **fuel**)

IT Diesel **fuel** substitutes
(biodiesel; conversion of vegetable **oils** to diesel **fuel**)

IT Diesel **fuel**
(conversion of vegetable **oils** to diesel **fuel**)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(rape-**oil**, Me esters; conversion of vegetable **oils** to diesel **fuel**)

IT Rape **oil**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(transesterification of; conversion of vegetable **oils** to diesel **fuel**)

IT **Fats** and Glyceridic **oils**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(vegetable, transesterification of; conversion of vegetable **oils** to diesel **fuel**)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(vegetable-**oil**, Me esters; conversion of vegetable **oils** to diesel **fuel**)

IT 67-56-1, Methanol, uses
RL: NUU (Other use, unclassified); USES (Uses)
(transesterification with; conversion of vegetable **oils** to diesel **fuel**)

L7 ANSWER 21 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1999:327609 CAPLUS
DN 131:48436
TI Effects of rapeseed **oil fuel** properties on exhaust **emissions** of a swirl-chamber diesel engine
AU Hamasaki, Kazunori; Ohsako, Takanobu; Kinoshita, Eiji; Takasaki, Koji
CS Faculty of Engineering, Kagoshima University, Kagoshima-shi, Korimoto, 890-0065, Japan
SO Nippon Kikai Gakkai Ronbunshu, B-hen (1999), 65(631), 1146-1151
CODEN: NKGBDD; ISSN: 0387-5016
PB Nippon Kikai Gakkai
DT Journal
LA Japanese
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 45

AB Due to the increasing interest in the CO2 problem, the request for alternative **fuels** from regenerated vegetable **energy** sources is increasing. The present work describes the results of expts. using rapeseed **oil**, emulsified rapeseed **oil**, rapeseed **oil** Me ester, and gas **oil** in a swirl-chamber diesel engine. The results show that the viscosity of rapeseed **oil** Me ester is a little higher than that of gas **oil** and that the smoke concn. with rapeseed **oil** Me ester is about 50% lower than that with gas **oil**. Furthermore, NOx and smoke concns. with emulsified rapeseed **oil** are lower than those with gas **oil** and **energy**

consumption is similar to that in the case of operation with gas **oil** and rapeseed **oil** Me ester.

ST diesel engine exhaust **fuel** rapeseed **oil** Me ester

IT Exhaust gases (engine)
(diesel; effects of rapeseed **oil** **fuel** properties on exhaust **emissions** of a swirl-chamber diesel engine)

IT Diesel **fuel**
Exhaust particles (engine)
Gas **oils**
(effects of rapeseed **oil** **fuel** properties on exhaust **emissions** of a swirl-chamber diesel engine)

IT Rape **oil**
RL: NUU (Other use, unclassified); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effects of rapeseed **oil** **fuel** properties on exhaust **emissions** of a swirl-chamber diesel engine)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters; effects of rapeseed **oil** **fuel** properties on exhaust **emissions** of a swirl-chamber diesel engine)

IT 124-38-9, Carbon dioxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(effects of rapeseed **oil** **fuel** properties on exhaust **emissions** of a swirl-chamber diesel engine)

L7 ANSWER 22 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1999:318266 CAPLUS

DN 130:340543

TI Methyl esters of sunflower **oil** as **fuels**. Alternative to petroleum-derived diesel **fuel**

AU Vicente, G.; Martinez, M.; Aracil, J.

CS Dpto. de Ingenieria Quimica. Facultad de Ciencias Quimicas. Universidad Complutense de Madrid, Spain

SO Ingenieria Quimica (Madrid) (1999), 31(355), 153-159
CODEN: INQUDI; ISSN: 0210-2064

PB Ingenieria Quimica, S.A.

DT Journal

LA Spanish

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51, 59

AB The properties, combustion characteristics, advantages, and prodn. technologies involved in the use of Me esters of sunflower **oil fatty acids** as alternatives to diesel **fuel** are discussed. The **oil** is extd. from the seeds, refined and subjected to transesterification. The combustion properties of the biodiesel are compared to those of diesel **fuels**. Exhaust **emissions** show reduced levels of CO, SO2, particles, aroms., hydrocarbons, and increased levels of aldehydes.

ST sunflower **oil** Me ester biodiesel

IT Diesel **fuel** substitutes
Diesel **fuel** substitutes
(biodiesel; sunflower **oil** Me esters as alternative **fuels** to petroleum-derived diesel **fuel**)

IT Cetane number
Combustion enthalpy
Density
Exhaust gases (engine)
Exhaust particles (engine)

```
  Ignition point
 Transesterification
 Viscosity
    (sunflower oil Me esters as alternative fuels to
    petroleum-derived diesel fuel)
IT   Aldehydes, occurrence
     Aromatic hydrocarbons, occurrence
     Hydrocarbons, occurrence
     RL: POL (Pollutant); OCCU (Occurrence)
        (sunflower oil Me esters as alternative fuels to
        petroleum-derived diesel fuel)
IT   Fatty acids, uses
     RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
     engineered material use); PREP (Preparation); USES (Uses)
        (sunflower-oil, Me esters; sunflower oil Me esters
        as alternative fuels to petroleum-derived diesel fuel
        )
IT   630-08-0, Carbon monoxide, occurrence   7446-09-5, Sulfur dioxide,
     occurrence   11104-93-1, Nitrogen oxide, occurrence
     RL: POL (Pollutant); OCCU (Occurrence)
        (sunflower oil Me esters as alternative fuels to
        petroleum-derived diesel fuel)
RE.CNT  12    THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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L7   ANSWER 23 OF 56  CAPLUS  COPYRIGHT 2002 ACS
Full Text
AN   1999:302394  CAPLUS
DN   131:21253
TI   Recent advances in the development of alternative diesel fuel from
     vegetable oils and animal fats
AU   Dunn, R. O.; Knothe, G.; Bagby, M. O.
CS   Oil Chemical Research, National Center for Agricultural Utilization
     Research, U.S. Department of Agriculture, Agricultural Research Service,
     Peoria, IL, 61604, USA
SO   Recent Research Developments in Oil Chemistry (1997), 1, 31-56
     CODEN: RROCFF
PB   Transworld Research Network
DT   Journal; General Review
LA   English
CC   52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
     Section cross-reference(s): 17, 51, 59
AB   Interest in utilizing vegetable oils and animal fats (triglycerides)
     as alternative fuels for compression-ignition (diesel) engines has
     increased in the past 10 to 15 yr.  Triglycerides have many fuel
     properties including heat of combustion, cetane no., high flash temp. and
     good lubricity that make them attractive as fuels or extenders.
     Triglycerides are renewable, biodegradable and cleaner burning than
     conventional diesel fuels.  However, engine tests have shown that
```

extended use of triglycerides as diesel **fuels** leads to problems such as injector coking, ring carbonization and crankcase lubricant contamination. These problems were attributable to incomplete combustion and poor **fuel** atomization, conditions directly related to the relatively high viscosity of triglycerides. Diln. with conventional diesel **fuel**, transesterification with alc., emulsification or co-solvent blending and pyrolyzation have been examd. as methods for reducing viscosity. At present, transesterification has made the most progress towards commercialization. As a result, mono-alkyl esters of **fatty acids** from transesterified vegetable **oils** or animal **fats** are defined as biodiesel in the US. This work reviews, with 119 refs., development of alternative diesel **fuels** and extenders from triglycerides. Recent advances in improving low-temp. flow properties, **fuel ignition** quality and exhaust **emissions** are discussed.

ST review alternative diesel **fuel** vegetable **oil**; animal **fat** alternative diesel review; biodiesel vegetable **oil** animal **fat** review

IT **Fats** and Glyceridic **oils**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(animal; recent advances in development of alternative diesel **fuel** from vegetable **oils** and animal **fats**)

IT Diesel **fuel** substitutes
(biodiesel; recent advances in development of alternative diesel **fuel** from vegetable **oils** and animal **fats**)

IT Glycerides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(recent advances in development of alternative diesel **fuel** from vegetable **oils** and animal **fats**)

IT **Fats** and Glyceridic **oils**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(vegetable; recent advances in development of alternative diesel **fuel** from vegetable **oils** and animal **fats**)

RE.CNT 119 THERE ARE 119 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L7 ANSWER 24 OF 56 CAPLUS

Full Text

AN 1999:150233 CAPLUS

DN 130:256284

TI Biodiesel exhaust **emissions** and determination of their environmental and health effects

AU Krahl, Jurgen; Bunger, Jurgen; Munack, Axel

CS Bundesforschungsanstalt fur Landwirtschaft Braunschweig-Volkenrode (FAL), Braunschweig, 38116, Germany

SO Plant Oils as Fuels: Present State of Science and Future Developments, Proceedings of the Symposium, Potsdam, Feb. 16-18, 1997 (1998), Meeting Date 1997, 104-122. Editor(s): Martini, Norbert; Schell, Jozef S. Publisher: Springer, Berlin, Germany.
CODEN: 67HXAP
DT Conference; General Review
LA English
CC 59-0 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 4, 52
AB A review with 34 refs. In Europe, the use of rapeseed **oil fuels** in diesel engines has been intensively investigated since the **energy** crisis of the early 1970s. In the beginning, the emphasis was placed on the tech. possibilities assocd. with the use of rapeseed **oil** as a **fuel**. However, research has shown that pure rapeseed **oil** can only be used in specially designed engines. Research that followed indicated that rapeseed **oil** Me ester (RME) was a suitable replacement for petroleum diesel **fuel** (DF). After this discovery, research has focused on the engine exhaust **emissions** that result when fueling with both unmodified rapeseed **oil** and RME. In the USA, research has focused on soybean **oil** Me ester (SME). Both RME and SME are called biodiesel. In Germany biodiesel must fulfill the std. DIN V 51606. Initially, environmental related research concd. on the federally regulated hydrocarbons (HCs), carbon monoxide, and NOx exhaust gas **emission**. In addn., a series of current publications compare the environmentally important but nonregulated polycyclic arom. hydrocarbons (PAHs), aldehydes, ketones, and, in some cases, the arom. compds.
ST review biodiesel exhaust health environmental hazard
IT Polycyclic compounds
RL: ADV (Adverse effect, including toxicity); POL (Pollutant); BIOL (Biological study); OCCU (Occurrence)
(arom. hydrocarbons; biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT Air pollution
(biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT Aldehydes, biological studies
Aromatic compounds
Hydrocarbons, biological studies
Ketones, biological studies
RL: ADV (Adverse effect, including toxicity); POL (Pollutant); BIOL (Biological study); OCCU (Occurrence)
(biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT Exhaust particles (engine)
Fuels
Soot
(biodiesel; biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT Air pollution
(exhaust, biodiesel; biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT Aromatic hydrocarbons, biological studies
RL: ADV (Adverse effect, including toxicity); POL (Pollutant); BIOL (Biological study); OCCU (Occurrence)
(polycyclic; biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT **Fatty acids**, miscellaneous
RL: MSC (Miscellaneous)
(rape-**oil**, Me esters, biodiesel **fuel**; biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)
IT 630-08-0, Carbon monoxide, biological studies 11104-93-1, Nitrogen oxide

(NOx), biological studies
RL: ADV (Adverse effect, including toxicity); POL (Pollutant); BIOL (Biological study); OCCU (Occurrence)
(biodiesel exhaust gas **emissions** and detn. of their environmental and health effects)

RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L7 ANSWER 25 OF 56 CAPLUS

Full Text

AN 1998:753035 CAPLUS

DN 130:85189
TI Exhaust **emissions** of waste plant **oil** methylester as diesel **fuel**
AU Nakazawa, Makoto; Sagiyama, Takashi; Suzuki, Masaaki; Hasegawa, Atsuko
CS Air Quarity Division, Kanagawa Environmental Research Center, Japan
SO Kanagawa-ken Kankyo Kagaku Senta Kenkyu Hokoku (1997), 20, 15-19
CODEN: KKHOEP; ISSN: 0917-8279
PB Kanagawa-ken Kankyo Kagaku Senta
DT Journal
LA Japanese
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 17, 51, 60
AB Exhaust **emissions** from diesel engines **burning** waste vegetable **oil** methylester as **fuels** are characterized by lower black smoke and hydrocarbon **emissions**, as compared to **burning** light **oils**. Nitrogen oxides and carbon dioxide **emissions** were slightly higher. HCHO **emission** was slightly higher before engine warm-up; but lower after the warm-up. Particulate **emissions** were higher.
ST waste plant **oil** methylester diesel engine; vegetable **oil** methylester **fuel** diesel exhaust
IT Diesel engines
Exhaust gases (engine)
Fuel oil
(exhaust **emissions** of waste plant **oil** methylester as diesel **fuel**)
IT Wastes
(vegetable **oil** methylester; exhaust **emissions** of waste plant **oil** methylester as diesel **fuel**)
IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(vegetable-**oil**, Me esters; exhaust **emissions** of waste plant **oil** methylester as diesel **fuel**)

L7 ANSWER 26 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1998:697607 CAPLUS
DN 130:27002
TI Development of FA-1 universal ashless **energy**-saving additive for **fuel oil**
AU Tang, Xiaodong; Xu, Rong; Yin, Daiyi; Li, Yongjie; Yang, Xiuzhong; Ren, Zhenghua
CS Dept. Chem. Eng., SWPI, Sichuan, 637001, Peop. Rep. China
SO Xinan Shiyou Xueyuan Xuebao (1998), 20(3), 64-67
CODEN: XSXUEG; ISSN: 1000-2634
PB Xinan Shiyou Xueyuan Xuebao Bianjibu
DT Journal
LA Chinese
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
AB Ashless **energy**-saving additives not only can save **energy** and eliminate soot but also cause no secondary pollution to the atm., and therefore, they represent the trend of development of **energy**-saving additives for **fuel oil**. FA-1 universal ashless **energy**-saving additive has been developed in accordance with this trend. The optimum amt. of FA-1 is about 0.1% (vol.), the efficiency of saving of **oil** is 4.7 on bench test and the av. efficiency of saving of **oil** is 15-20% (no less than 10% for new motor vehicles) on road test. FA-1 also has many other functions, such as supporting combustion, eliminating soot, reducing HC and CO2 **emission**, lessening carbon deposit, reducing engine noise and enhancing mech. horsepower, etc. After analyzing these test results, it is proposed that the mechanism of FA-1 lies in the improvement of the spray quality of **fuel oil** and the chain reaction of three mols. occurring between oxygen and FA-1.
ST **fuel oil** multifunctional additive
IT **Fuel oil** additives

(multifunctional; FA-1 universal ashless **energy**-saving
additive for **fuel oil**)

IT **Fatty acids**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(tall-**oil**; FA-1 universal ashless **energy**-saving
additive for **fuel oil**)

L7 ANSWER 27 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1998:514854 CAPLUS
DN 129:163813
TI Assessing the viability of using rape methyl ester (RME) as an alternative to mineral diesel **fuel** for powering road vehicles in the UK
AU Williamson, Ann-Marie; Badr, Ossama
CS Department of Applied Energy, Cranfield University, Bedfordshire, MK430AL, UK
SO Applied Energy (1998), 59(2/3), 187-214
CODEN: APENDX; ISSN: 0306-2619
PB Elsevier Science Ltd.
DT Journal; General Review
LA English
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59
AB A review with 53 refs. Rape Me ester (RME) is a suitable substitute for mineral diesel in existing compression-**ignition** engines. Its use as an alternative transport **fuel** will result in decreased **emissions** of atm. pollutants (particularly SO2, hydrocarbons and smoke) from this source. However, to encourage such a trend in the UK, the Government needs to adopt the European Union's recommendation of a redn. of excise duties on biofuels to 10% of the rate applied to lead-free petrol to ensure its economic short-term competitiveness in the UK market. Such a subsidy will not be required by the year 2004. The available resource base for rape-seed **oil** in the UK limits the prodn. of RME, so it could satisfy only up to 4% of demand on **fuel** by road vehicles powered by diesel engines in the UK. This suggests that it should be used preferentially in urban areas and waterways where its environmental benefits would be maximized.
ST rape methyl ester diesel **fuel** review
IT Diesel engines
(assessing the viability of using rape Me ester as an alternative to mineral diesel **fuel** for powering road vehicles in UK)
IT Diesel **fuel** substitutes
Diesel **fuel** substitutes
(biodiesel; assessing the viability of using rape Me ester as an alternative to mineral diesel **fuel** for powering road vehicles in UK)
IT Air pollution
(control; assessing the viability of using rape Me ester as an alternative to mineral diesel **fuel** for powering road vehicles in UK)
IT **Fatty acids**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters; assessing the viability of using rape Me ester as an alternative to mineral diesel **fuel** for powering road vehicles in UK)

L7 ANSWER 28 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1998:313092 CAPLUS
DN 128:323957
TI Combustion of **fat** and vegetable **oil** derived **fuels** in diesel engines

AU Graboski, Michael S.; Mccormick, Robert L.
CS Colorado Institute for Fuels and High Altitude Engine Research and Department of Chemical Engineering and Petroleum Refining, Colorado School of Mines, Golden, CO, 80401-1887, USA
SO Progress in Energy and Combustion Science (1998), 24(2), 125-164
CODEN: PECSDO; ISSN: 0360-1285
PB Elsevier Science Ltd.
DT Journal; General Review
LA English
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45
AB A review with 108 refs. of the status of **fat** and **oil** derived diesel **fuels** with respect to **fuel** properties, engine performance, and **emissions** is reviewed. The **fuels** considered are primarily the Me esters of **fatty acids** derived from a variety of vegetable **oils** and animal **fats**, and referred to as biodiesel. The major obstacle to widespread use of biodiesel is the high cost relative to petroleum. Economics of biodiesel prodn. are discussed, and it is concluded that the price of the feedstock **fat** or **oil** is the major factor detg. biodiesel price. Biodiesel is completely miscible with petroleum diesel **fuel**, and is generally tested as a blend. The use of biodiesel in neat or blended form has no effect on the **energy** based engine **fuel** economy. The lubricity of these **fuels** is superior to conventional diesel, and this property is imparted to blends at levels above 20 vol%. **Emissions** of PM can be reduced dramatically through use of biodiesel in engines that are not high lube **oil** emitters. **Emissions** of NOx increase significantly for both neat and blended **fuels** in both two- and four-stroke engines. The increase may be lower in newer, lower NOx emitting four-strokes, but addnl. data are needed to confirm this conclusion. A discussion of available data on unregulated air toxins is presented, and it is concluded that definitive studies have yet to be performed in this area. A detailed discussion of important biodiesel properties and recommendations for future research is presented. Among the most important recommendations is the need for all future studies to employ biodiesel of well-known compn. and purity, and to report detailed analyses. The purity levels necessary for achieving adequate engine endurance, compatibility with coatings and elastomers, cold flow properties, stability, and **emissions** performance must be better defined.
ST review diesel **fuel** vegetable **oil** **fat**
IT **Fats** and Glyceridic **oils**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(combustion of **fat** and vegetable **oil** derived **fuels** in diesel engines)
IT Combustion
(of **fat** and vegetable **oil** derived **fuels** in diesel engines)
IT **Fats** and Glyceridic **oils**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(vegetable; combustion of **fat** and vegetable **oil** derived **fuels** in diesel engines)

L7 ANSWER 29 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1998:144538 CAPLUS
DN 128:182348
TI Thermal preparation of liquid **fuels** for low-pollutant premixed combustion
AU Stoffel, Beat
CS VDI Verlag GmbH, Duesseldorf, Germany
SO Fortschritt-Berichte VDI, Reihe 15: Umwelttechnik (1996), 151, 1-190
CODEN: FRUMFB; ISSN: 0178-9589
PB VDI Verlag GmbH
DT Journal

LA German
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
AB Liq. **fuels** can be **burned** with low pollutant **emissions** comparable to those attained with gaseous **fuels** if the liq. **fuels** can be converted to gaseous **fuels** and mixed homogeneously with combustion air before entering the combustion zone. Using a complete temporal and spatial sepn. of the three major steps of liq. **fuel** combustion (e.g., vaporization of finely atomized liq. **fuel**, homogeneous mixing of **fuel** and air before combustion, and combustion reaction at controlled temp. and residence time in the range of milliseconds), very low pollutant **emissions** (esp. NOx, CO, and soot) in the exhaust gas are possible. The concept was named VPL (vaporized premixed lean combustion). Exptl. investigations were carried out in a lab. scale test rig with a variable **fuel** mass flow of 0.5-2 kg/h. A multitude of liq. **fuels** were mixed with water at different ratios (water/**fuel** mass ratio 0.1-0.5:1) and converted to a gaseous **fuel** at 1-6 bar in a tube vaporizer heated externally by hot combustion exhaust gases. Depending on temp. and mean residence time in the vaporizer, different amts. of liq. **fuels** were thermally cracked (e.g., to ethylene, propene and methane). For the less volatile **fuels** (e.g., light **fuel oil**, unleaded gasoline, and rapeseed **oil** Me esters), coinjection of steam into the vaporizer was necessary. The generated gaseous **fuels** were mixed homogeneously with preheated combustion air in a tubular mixing zone equipped with static baffles and **burned** at atm. pressure in a new Pyrocore ceramic-fiber radiant **burner** with 15 kW thermal power installed in a water-cooled test boiler.
ST premixed combustion liq **fuel**; pyrolysis liq **fuel** premixed combustion; steam cracking liq **fuel** premixed combustion; radiant **burner** liq **fuel** premixed combustion
IT Synthetic fibers
RL: DEV (Device component use); USES (Uses)
(ceramic, **burners**; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT Ceramics
RL: DEV (Device component use); USES (Uses)
(fibers, **burners**; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT Soot
(formation and **emission** of; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT Combustion
(premixed; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT Thermal decomposition
(pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT **Burners**
(radiant; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT **Fatty acids**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(rape-**oil**, Me esters, combustion of; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT Cracking (reaction)
RL: RCT (Reactant); RACT (Reactant or reagent)
(steam; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions 142-82-5, Heptane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(combustion of; pyrolysis and steam cracking pre-treatment in premixed

lean combustion with low pollutant **emissions**)
IT 630-08-0, Carbon monoxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide (NOx), formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(formation and **emission** of; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)
IT 74-82-8, Methane, reactions 74-85-1, Ethene, reactions 115-07-1, 1-Propene, reactions
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(in-situ formation and combustion of; pyrolysis and steam cracking pre-treatment in premixed lean combustion with low pollutant **emissions**)

L7 ANSWER 30 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1998:135237 CAPLUS
DN 128:182437
TI Pilot production of biodiesel on the Nez Perce Tribe reservation
AU Cruz, Rico O.; Stanfill, John; Powaukee, Bart
CS Nez Perce Tribe, Department of Environmental Restoration and Waste Management, Lapwai, ID, 83540, USA
SO Bioenergy '96: Partnerships to Develop and Apply Biomass Technologies, Proceedings of the National Bioenergy Conference, 7th, Nashville, Sept. 15-20, 1996 (1996), Volume 1, 364-371 Publisher: Tennessee Valley Authority, Muscle Shoals, Ala.
CODEN: 65SBAY
DT Conference
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 17, 51, 60
AB The pilot project located at Lapwai, Idaho, relates to a renewable **fuel** from vegetable **oil** or animal **fat** and alc. The **fuel**, termed as biodiesel, is produced through a modified transesterification process. Biodiesel is comparable to diesel **fuel** with respect to chem. and phys. attributes, and combustion characteristics. Biodiesel is also, biodegradable, cleaner **burning** and safer, and has environmentally friendly attributes. The unit produces up to 1150 L of biodiesel per batch, with initial batches of methanol and used cooking **oil** as raw materials. For demonstration purposes, both biodiesel and diesel are used in diesel powered vehicles and small engines. The raw materials and biodiesel are analyzed, and the vehicles/engines are tested for **emissions** and performance.
ST biodiesel transesterification methanol used cooking **oil**
IT Diesel **fuel** substitutes
(biodiesel; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)
IT Diesel **fuel** substitutes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(biodiesel; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)
IT **Fatty acids**, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(coco, Me esters; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)
IT **Fatty acids**, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(coco, esters, Et ester; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)
IT Wastes

RL: RCT (Reactant); RACT (Reactant or reagent)
(cooking **oil**; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT Transesterification
(pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT Glycerides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT **Fatty acids**, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(rape-**oil**, Et esters; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT **Fatty acids**, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(soya, Me esters; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT **Fatty acids**, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(soya, esters, Et ester; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT Diesel **fuel** substitutes
(synthetic; pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

IT 67-56-1, Methanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(pilot prodn. of biodiesel on the Nez Perce Tribe reservation)

L7 ANSWER 31 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1997:672400 CAPLUS

DN 127:333970

TI Rapeseed **oil fuel** properties for diesel engines

AU Hamasaki, Kazunori; Kinoshita, Eiji; Nakamura, Takuya; Kameda, Akio; Oyama, Takayuki

CS Fac. Eng., Kagoshima Univ., Kagoshima, 890, Japan

SO Kagoshima Daigaku Kogakubu Kenkyu Hokoku (1997), 39, 23-28
CODEN: KDKKBA; ISSN: 0451-212X

PB Kagoshima Daigaku Kogakubu

DT Journal

LA Japanese

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45

AB Due to the increasing interest in the CO2 problem, the request for alternative **fuels** from regenerated vegetable **energy** sources is increasing. The present work describes the results of expts. using rapeseed **oil**, emulsified rapeseed **oil**, rapeseed Me ester, and gas **oil** in a swirl-chamber diesel engine. The results show that the viscosity of rapeseed Me ester is a little higher than that of gas **oil**, and that the smoke concn. for rapeseed Me ester is about 50% lower than that of gas **oil**. Furthermore, NOx and smoke concns. for emulsified rapeseed **oil** are lower than those of gas **oil** and **energy** consumption is similar to that in the case of operation with gas **oil** and rapeseed Me ester.

ST rapeseed **oil** emulsified diesel **fuel**; Me ester rapeseed diesel **fuel**; exhaust diesel smoke nitrogen oxide **emission**; air pollution control diesel exhaust

IT Air pollution
(control; rapeseed **oil fuel** properties for diesel engines)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(esters, rape-**oil**, Me esters; rapeseed **oil**

fuel properties for diesel engines)
IT Air pollution
(exhaust, diesel; rapeseed **oil fuel** properties for
diesel engines)
IT Diesel **fuel**
Smoke
(rapeseed **oil fuel** properties for diesel engines)
IT Rape **oil**
RL: NUU (Other use, unclassified); USES (Uses)
(rapeseed **oil fuel** properties for diesel engines)
IT 124-38-9, Carbon dioxide, occurrence 11104-93-1, Nitrogen oxide nox,
occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(rapeseed **oil fuel** properties for diesel engines)

L7 ANSWER 32 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1997:615690 CAPLUS
DN 127:280645
TI Cetane numbers of fatty compounds: influence of compound structure and of various potential cetane improvers
AU Knothe, Gerhard; Bagby, Marvin O.; Ryan, Thomas W., III
CS U.S. Dept. of Agriculture, USA
SO Society of Automotive Engineers, [Special Publication] SP (1997), SP-1274(State of Alternative Fuel Technologies), 127-132
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59
AB Biodiesel is a mixt. of esters (usually Me esters) of **fatty acids** found in the triglycerides of vegetable **oils**. The different fatty compds. comprising biodiesel possess different **ignition** properties. To investigate and potentially improve these properties, the cetane nos. of various **fatty acids** and esters were detd. in a const. vol. combustion app. The cetane nos. range from 20.4 for linolenic acid to 80.1 for Bu stearate. The cetane nos. depend on the no. of CH2 groups as well as the no. of double bonds and other factors. Various oxygenated compds. were studied for their potential of improving the cetane nos. of fatty compds. Several potential cetane improvers with **ignition** delay properties giving calcd. cetane nos. over 100 were identified. The effect of these cetane improvers depended on their concn. and also on the fatty material investigated. In one case, the cetane no. of the acid was increased more than that of the corresponding esters. The effect also depends on the nature of the ester. These results offer the possibility of tailoring cetane improvers to the nature of component fatty compds. in biodiesel. The cetane improving-additives are a potential route for reducing the exhaust **emissions** of biodiesel, for example NOx.
ST biodiesel **fatty acid** ester cetane no; **fatty acid** ester structure cetane no
IT **Fuels**
(biofuels, biodiesel; influence of compd. structure and of various potential cetane improvers on cetane nos. of fatty compds.)
IT **Fatty acids**, properties
RL: PRP (Properties)
(esters; influence of compd. structure and of various potential cetane improvers on cetane nos. of fatty compds.)
IT Air pollution
Cetane number
Ignition
(influence of compd. structure and of various potential cetane improvers on cetane nos. of fatty compds.)

IT 11104-93-1, Nitrogen oxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(influence of compd. structure and of various potential cetane improvers on cetane nos. of fatty compds.)

IT 57-11-4, Stearic acid, properties 60-33-3, Linoleic acid, properties 111-59-1, Propyl oleate 111-61-5, Ethyl stearate 111-62-6, Ethyl oleate 112-61-8, Methyl stearate 112-62-9, Methyl oleate 112-63-0, Methyl linoleate 112-80-1, Oleic acid, properties 123-95-5, Butyl stearate 142-77-8, Butyl oleate 301-00-8, Methyl linolenate 463-40-1, Linolenic acid 544-35-4, Ethyl linoleate 1191-41-9, Ethyl linolenate 2634-45-9, Butyl linoleate 3634-92-2, Propyl stearate 38370-68-2, Butyl linolenate 38433-95-3, Propyl linoleate 106196-77-4
RL: PRP (Properties)
(influence of compd. structure and of various potential cetane improvers on cetane nos. of fatty compds.)

L7 ANSWER 33 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1997:558532 CAPLUS
DN 127:139458
TI Sources of Fine Organic Aerosol. 8. Boilers **Burning** No. 2 Distillate **Fuel Oil**
AU Rogge, Wolfgang F.; Hildemann, Lynn M.; Mazurek, Monica A.; Cass, Glen R.; Simoneit, Bernd R. T.
CS Environmental Engineering Science Department, California Institute of Technology, Pasadena, CA, 91125, USA
SO Environmental Science and Technology (1997), 31(10), 2731-2737
CODEN: ESTHAG; ISSN: 0013-936X
PB American Chemical Society
DT Journal
LA English
CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51
AB Fine org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil** has been characterized on a mol. basis using GC/MS techniques. Most of the identified compd. mass consists of n-alkanoic acids (42.0-51.5%), arom. acids (5.8-22.6%), and n-alkanes (6.7-25.0%). Polycyclic arom. hydrocarbons (PAH) and oxygenated PAH (oxy-PAH) together comprise 3.1-8.6% of the identifiable mass and together with chlorinated compds. (5.8-16.4%) show the largest variations in **emission** rates between the two expts. reported here. An increase in chlorinated compd. **emissions** between tests is accompanied by a similar increase in elemental carbon (i.e., soot) and PAH **emissions**, which may follow the results of lab. expts. that suggest that the presence of chlorinated compds. can enhance both soot and PAH formation. Differences between the hopanes distribution in the boiler exhaust vs. that found in both vehicle exhaust and in the southern California atm. suggest that the **oil**-fired boiler exhaust is at most a minor contributor to the atm. aerosol, which is consistent with inferences drawn from local **emission** inventories.
ST org particulate flue gas air pollution; **fuel oil** org particulate **emission**; alkanoate arom acid alkane particulate **emission**; polycyclic arom hydrocarbon **emission**; boiler distillate **fuel oil** soot **emission**
IT Polycyclic compounds
RL: POL (Pollutant); OCCU (Occurrence)
(arom. hydrocarbons; compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)
IT Carboxylic acids, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(arom.; compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel**

oil)
IT Atmospheric aerosols
Flue gases
Fuel oil
Soot
(compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)
IT Alkanes, occurrence
Fatty acids, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)
IT Triterpenes
RL: POL (Pollutant); OCCU (Occurrence)
(hopane; compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)
IT Air pollution
(particulate; compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)
IT Aromatic hydrocarbons, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(polycyclic; compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)
IT 50-32-8, Benzo[a]pyrene, occurrence 50-79-3, 2,5-Dichlorobenzoic acid 56-55-3, Benz[a]anthracene 57-10-3, Hexadecanoic acid, occurrence 57-11-4, Octadecanoic acid, occurrence 65-85-0, Benzoic acid, occurrence 82-05-3, 7H-Benz[de]anthracen-7-one 84-65-1, Anthraquinone 85-01-8, Phenanthrene, occurrence 87-65-0, 2,6-Dichlorophenol 100-21-0, 1,4-Benzenedicarboxylic acid, occurrence 106-48-9, 4-Chlorophenol 112-37-8, Undecanoic acid 112-85-6, Behenic acid 112-95-8, Eicosane 120-12-7, Anthracene, occurrence 121-91-5, 1,3-Benzenedicarboxylic acid, occurrence 129-00-0, Pyrene, occurrence 143-07-7, Dodecanoic acid, occurrence 192-97-2, Benzo[e]pyrene 203-12-3, Benzo[ghi]fluoranthene 205-99-2, Benzo[b]fluoranthene 206-44-0, Fluoranthene 207-08-9, Benzo[k]fluoranthene 334-48-5, Decanoic acid 486-25-9, 9H-Fluoren-9-one 506-12-7, Heptadecanoic acid 506-30-9, Eicosanoic acid 506-38-7, Pentacosanoic acid 506-46-7, Hexacosanoic acid 535-80-8, 3-Chlorobenzoic acid 544-63-8, Tetradecanoic acid, occurrence 544-85-4, Dotriacontane 557-59-5, Tetracosanoic acid 593-49-7, Heptacosane 629-92-5, Nonadecane 629-94-7, Heneicosane 629-97-0, Docosane 629-99-2, Pentacosane 630-01-3, Hexacosane 630-02-4, Octacosane 630-03-5, Nonacosane 630-04-6, Hentriacontane 630-05-7, Tritriacontane 638-53-9, Tridecanoic acid 638-67-5, Tricosane 638-68-6, Triacontane 646-30-0, Nonadecanoic acid 646-31-1, Tetracosane 2433-96-7, Tricosanoic acid 2840-51-9, 2-Methylfluoren-9-one 86853-88-5, 1H-Benz[de]anthracen-1-one
RL: POL (Pollutant); OCCU (Occurrence)
(compn. of org. particulate matter emitted from an industrial-scale boiler **burning** no. 2 distillate **fuel oil**)

L7 ANSWER 34 OF 56 CAPLUS
Full Text
AN 1997:445913 CAPLUS
DN 127:111128
TI Results of the joint project "**fuel** from rape"
AU Hacker, Claus-M.; Schliephake, Dietrich
CS FIB - Forschungs-, Industrie- und Umweltberatungsgesellschaft mbH, Velbert, D-42552, Germany
SO European Motor Biofuels Forum, Proceedings, 2nd, Graz, Sept. 22-25, 1996

(1996), 353-360 Publisher: Joanneum Research Forschungsgesellschaft, Graz, Austria.
CODEN: 64RCAP

DT Conference
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45
AB The report includes selected results of the joint project "**Fuel** from Rape" which investigates into the agricultural, process and chem. engineering framework for the utilization of rape seed **oil** and its conversion products as **fuel**. The entire process chain from the cultivation to the **oil** mill and the chem. conversion into **fuel** and also practical testing was assessed in 15 individual projects. We were able to prove that through the use of rape seed **oil** in refineries we can produce a **fuel** (DKR) with excellent exhaust **emission** values. Keypoints of the project work were the assessment of **energy** and CO2 balance and a comparison of the bio-**fuels** DKR, RME and ROR.
ST diesel **fuel** rapeseed **oil** methyl ester
IT Air pollution
(control; diesel **fuel** from rapeseed **oil**)
IT Diesel **fuel**
(diesel **fuel** from rapeseed **oil**)
IT **Fatty acids**, uses
RL: BMF (Bioindustrial manufacture); NUU (Other use, unclassified); BIOL (Biological study); PREP (Preparation); USES (Uses)
(esters, rape-**oil**, Me esters; diesel **fuel** from rapeseed **oil**)

L7 ANSWER 35 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1997:434816 CAPLUS
DN 127:69961
TI Survey about biodiesel exhaust **emissions** and their environmental effects
AU Krahl, Jurgen; Munack, Axel; Bahadi, Mufit; Schumacher, Leon; Elser, Nancy
CS Inst. Biosystems Engineering, Federal Agricultural Res. Centre, Braunschweig, Germany
SO Liquid Fuel and Industrial Products from Renewable Resources, Proceedings of the Liquid Fuel Conference, 3rd, Nashville, Sept. 15 -17, 1996 (1996), 136-148. Editor(s): Cundiff, John S. Publisher: American Society of Agricultural Engineers, St. Joseph, Mich.
CODEN: 64QYAI
DT Conference
LA English
CC 59-3 (Air Pollution and Industrial Hygiene)
AB In Europe, the use of rapeseed **fuels** in diesel engines has been intensively investigated since the **energy** crisis of the early 1970s. In the beginning, the emphasis was placed on the tech. possibilities assocd. with the use of rapeseed **oil** as a **fuel**. However, research has shown that pure rapeseed **oil** can only be used in specially designed engines. Research that followed indicated that rapeseed **oil** Me ester (RME) was a suitable replacement for petroleum diesel **fuel** (DF). After this discovery, research has focused on the engine exhaust **emissions** that result when fueling with both unmodified rapeseed **oil** and RME. In the USA research has focused on soybean **oil** methylester (SME). Both RME and SME are called biodiesel. In Germany biodiesel must fulfill the std. DIN V 51606. Initially, environmental related research concd. on the federally regulated hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) exhaust gas **emissions** (Vellguth, 1987). In addn., a series of current publications compare the environmentally important but non-regulated polycyclic arom. hydrocarbons (PAH), aldehydes, ketones and in some cases, the arom. compds. The paper presented is based on a former publication of Krahl et al. (1994), that spanned the data collected to

Mar., 1994. This paper includes addnl. data taken after Mar. of 1994.
ST biodiesel exhaust **emission**
IT Soybean **oil**
RL: NUU (Other use, unclassified); USES (Uses)
(Me ester; survey of biodiesel exhaust **emissions** and their environmental effects)
IT Exhaust gases (engine)
(diesel; survey of biodiesel exhaust **emissions** and their environmental effects)
IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(esters, rape-**oil**, Me esters; survey of biodiesel exhaust **emissions** and their environmental effects)
IT Air pollution
Soot
(survey of biodiesel exhaust **emissions** and their environmental effects)
IT Aldehydes, formation (nonpreparative)
Aromatic compounds
Hydrocarbons, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(survey of biodiesel exhaust **emissions** and their environmental effects)
IT 71-43-2, Benzene, formation (nonpreparative) 630-08-0, Carbon monoxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(survey of biodiesel exhaust **emissions** and their environmental effects)

L7 ANSWER 36 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1997:317055 CAPLUS
DN 127:37003
TI Life cycle analysis of biofuels under different environmental aspects
AU Kaltschmitt, M.; Reinhardt, G. A.; Stelzer, T.
CS Institut fur Energiewirtschaft und Rationelle Energieanwendung (IER), Universitat Stuttgart, Stuttgart, D-70565, Germany
SO Biomass and Bioenergy (1997), 12(2), 121-134
CODEN: BMSBEO; ISSN: 0961-9534
PB Elsevier
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59
AB The environmental impact of bioenergy carriers can be detd. with the help of life cycle anal. The present study shows that bioenergy carriers offer some clear ecol. advantages over fossil **fuels**, such as conserving fossil **energy** resources or reducing the greenhouse effect, but they also have some definite disadvantages (in particular regarding certain airborne pollutants) when the overall life cycle is considered. The paper first discusses the methodol. approach for conducting a Life Cycle Anal. (LCA) for biofuels; this approach is then used for a case study of Rape Me Ester (RME) compared with diesel **fuel**. The same approach is then applied for some bioenergy routes discussed currently in Germany. For the different bioenergy routes the results of the LCA for **Energy**, CO2 equivalents, N2O **emissions**, SO2 equivalents, SO2 **emissions** and NOx **emissions** are given and discussed.
ST biofuel life cycle analysis environmental aspect
IT Hydrocarbons, formation (nonpreparative)

RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(C>1; life cycle anal. of biofuels under different environmental aspects)

IT Wood
(beech, wastes, **energy** carrier; life cycle anal. of biofuels under different environmental aspects)

IT **Fuels**
(biofuels; life cycle anal. of biofuels under different environmental aspects)

IT Barley
Grass (Poaceae)
Miscanthus
Orchard grass
Poplar (Populus)
Reed
Triticale
Wheat straw
Willow (Salix)
Winter wheat
Wood waste
(**energy** carrier; life cycle anal. of biofuels under different environmental aspects)

IT Rape **oil**
Rye
RL: TEM (Technical or engineered material use); USES (Uses)
(**energy** carrier; life cycle anal. of biofuels under different environmental aspects)

IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(esters, rape-**oil**, Me esters; life cycle anal. of biofuels under different environmental aspects)

IT Potato (Solanum tuberosum)
Wheat
(ethanol, **energy** carrier; life cycle anal. of biofuels under different environmental aspects)

IT Dust
Environmental pollution
Particles
(life cycle anal. of biofuels under different environmental aspects)

IT Wood
(spruce, wastes, **energy** carrier; life cycle anal. of biofuels under different environmental aspects)

IT 64-17-5, Ethanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**energy** carrier; life cycle anal. of biofuels under different environmental aspects)

IT 64-17-5, Ethanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**fuel**; life cycle anal. of biofuels under different environmental aspects)

IT 50-00-0, Formaldehyde, formation (nonpreparative) 50-32-8, Benzo[a]pyrene, formation (nonpreparative) 71-43-2, Benzene, formation (nonpreparative) 74-82-8, Methane, formation (nonpreparative) 124-38-9, Carbon dioxide, formation (nonpreparative) 630-08-0, Carbon monoxide, formation (nonpreparative) 7446-09-5, Sulfur dioxide, formation (nonpreparative) 7647-01-0, Hydrogen chloride, formation (nonpreparative) 7664-41-7, Ammonia, formation (nonpreparative) 10024-97-2, Nitrous oxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative) 41903-57-5, Tetrachlorodibenzodioxin
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation,

nonpreparative); OCCU (Occurrence)
(life cycle anal. of biofuels under different environmental aspects)

L7 ANSWER 37 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1997:263988 CAPLUS
DN 126:280153
TI Producing biodiesel for the "truck in the park" project
AU Peterson, C.; Reece, Daryl; Thompson, Joe; Beck, Sidney; Haines, H.; Chase, C.
CS Department of Agricultural Engineering, University of Idaho, Moscow, ID, 83844-2040, USA
SO Proceedings - Biomass Conference of the Americas: Energy, Environment, Agriculture and Industry, 2nd, Portland, Oreg., Aug. 21-24, 1995 (1995), 921-930 Publisher: National Renewable Energy Laboratory, Golden, Colo. CODEN: 64FMAT
DT Conference
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 59
AB One of the principal advantages of biodiesel is it's environmental compatibility. It's biodegradability and reduced toxicity make it an ideal candidate **fuel** for environmentally sensitive areas. Biodiesel has potential as a **fuel** for equipment operating in or near waterways, sensitive wildlife habitat and other environmentally sensitive areas. The national park system has a mandate to maintain the environment in the areas they supervise. Use of biodiesel could be one more tool in achieving that goal. This paper is a progress report of a joint project between the University of Idaho, The Montana Department of Natural Resources and Conservation, Wyoming Department of **Energy**, the PNW and Alaska Regional Bioenergy Program, Chrysler Corporation and the National Park Service to **fuel** an on-road vehicle for service in Yellowstone National Park. A 5.9-L Cummins powered Dodge pickup is operated by NPS with **fuel** produced by the University of Idaho. Tests include regular dynamometer testing, **emissions** tests, injector coking anal., **oil** anal., detailed operational records and **fuel** characterization tests according to the ASAE proposed Engineering Practice for Testing of **Fuels** from Biol. Materials, X552.
ST dynamometer testing **emission** truck biofuel; rape **oil** ethyl ester diesel **fuel**
IT Diesel engines
Exhaust particles (engine)
(**emission** and performance of truck operation on rape **oil** Et ester diesel **fuel**)
IT Hydrocarbons, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emission** and performance of truck operation on rape **oil** Et ester diesel **fuel**)
IT Air pollution
(exhaust; **emission** and performance of truck operation on rape **oil** Et ester diesel **fuel**)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Et esters; **emission** and performance of truck operation on rape **oil** Et ester diesel **fuel**)
IT 630-08-0, Carbon monoxide, occurrence 11104-93-1, Nitrogen oxide nox, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emission** and performance of truck operation on rape **oil** Et ester diesel **fuel**)

L7 ANSWER 38 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text
AN 1997:29421 CAPLUS
DN 126:91773
TI Introduction of rapeseed methyl ester in diesel **fuel** - the French National Program
AU Montagne, X.
CS Institut Francais du Petrole, Fr.
SO Society of Automotive Engineers, [Special Publication] SP (1996), SP-1208(Topics in Alternative Fuels and Their Emissions), 239-248
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
AB The use of bio-**fuels** in Europe is justified by the common agricultural policy decisions, by the need to improve environment protection and by the search of alternative fossil **energy** sources. In such a context, France decided to conduct a national expt. to demonstrate that a diesel **fuel** contg., up to 5%, rapeseed Me ester (RME) could be handled as common diesel **fuel** by the distributors. Refiners (Elf, TOTAL), car and truck manufacturers (PSA, RENAULT SA, RENAULT TRUCKS), French civil services (industry and agricultural departments, ADEME) and an organization working on vegetable **oils** (ONIDOL) joined this program implemented and coordinated by IFP. Comprehensive tests were used to assess the impact of RME introduction on the main phys. and chem. characteristics of the blends produced, their compatibility with **fuel** additives and with plastic or metallic parts of engines and **fuel** lines. Running tests were used with private car and truck fleets, tests with car and truck engines on bench and chassis dynamometer to assess the behavior on aging, fouling and **emissions**. This paper presents a synthesis of the results obtained during this program which lasted from 1990 to 1995. Whereas its overall balance is pos. for the use of RME5 blends regarding aging, material compatibility, regulated (CO, UHC, particulates) or unregulated (aldehydes, PAH) pollutant **emissions**, it also points out some elements which have to be examd. as, for instance, a slight increase in NOx **emissions** or a slight deposit occurrence. Some improvement opportunities are proposed when needed and prospective development of the vegetable Me ester channel, used as diesel **fuel** in France or in Europe, is drawn up.
ST rapeseed methyl ester diesel **fuel**
IT **Fatty acids**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(esters, rape-**oil**, Me esters; introduction of rapeseed Me ester in diesel **fuel** - the French National Program)
IT Diesel **fuel**
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(introduction of rapeseed Me ester in diesel **fuel** - the French National Program)

L7 ANSWER 39 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1996:514904 CAPLUS
DN 125:200646
TI Rape seed **oil** methyl ester **fuel** as alternative diesel **fuel** for high speed diesel engines for urban buses
AU Jankowski, A.; Seczyk, J.; Reksa, M.; Sitnik, L.
CS Inst. of Aeronautics, Warsaw, Pol.
SO ICE (American Society of Mechanical Engineers) (1995), 24(Natural Gas and Alternative Fuels for Engines 1995), 105-109
CODEN: ICEIEG; ISSN: 1066-5048
PB American Society of Mechanical Engineers

DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 48, 59
AB The research concerning the application of rape **oil**-derived **fuels** in diesel engines of city buses is presented. The results of testing a RABA MAN Diesel engine of catalog rated power 141 kW at speed 2100 rpm, stroke vol. 10.349 dm3, and direct injection into an HM-type chamber on a test bed are given using a Me ester of rapeseed **oil** (RME) **fuel**. The testing comprised the engine performance and exhaust **emissions** measurement in compliance with EEC 49. The obtained results were compared with those for diesel **fuel**. Road testing of buses fed with RME **fuel** was conducted. As shown by the engine performance characteristics, the **energy** efficiency of the engine was slightly higher when the rape seed **oil**-derived **fuel** was used. Approx. 15% redn. in NOx, ~12% redn. in hydrocarbons, and ~40% redn. in soot were obtained using the RME **fuel**.
ST rapeseed **oil** methyl ester diesel **fuel**; engine diesel rapeseed **oil** **fuel**
IT Engines
(diesel, rapeseed **oil** Me ester as alternative **fuel** for high-speed diesel engines for urban buses)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters, rapeseed **oil** Me ester as alternative **fuel** for high-speed diesel engines for urban buses)
IT **Fuels**, diesel
(substitutes, rapeseed **oil** Me ester as alternative **fuel** for high-speed diesel engines for urban buses)

L7 ANSWER 40 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1996:514895 CAPLUS
DN 125:172181
TI Thermodynamic analysis of the engine internal process to determine the suitability of vegetable **oils** as alternative **fuels** for diesel engines
AU Raubold, W.
CS Internal Combustion Engines Dept., Technical Univ. Berlin, Berlin, Germany
SO ICE (American Society of Mechanical Engineers) (1995), 24(Natural Gas and Alternative Fuels for Engines 1995), 9-15
CODEN: ICEIEG; ISSN: 1066-5048
PB American Society of Mechanical Engineers
DT Journal
LA English
CC 48-8 (Unit Operations and Processes)
Section cross-reference(s): 52
AB Test-bed results were presented for a swirl-chamber diesel engine using four different kinds of **fuel**: (1) diesel **fuel** (ref.), (2) unprocessed rapeseed **oil**, (3) short-chain (C8,10) **fatty acids**, and (4) an **oil** similar to rapeseed **oil**. The thermodn. anal. of the measured cylinder pressure curves were used to obtain more detailed information, in addn. to the std. performance characteristics and **emissions**. The resultant heat-release curves helped to show correlations between the properties of the **fuels** used and the test-bed results. In addn. to the gaseous **emissions**, the smoke nos. and the particulate **emissions** according to EPA regulations were also measured. The test engine did not meet the performance and durability requirements when fueled with rapeseed **oil**. When vegetable **oils** with long-chain **fatty acids** are to be **burned**, the injection system should be modified to alter the injection timing according to engine speed and load. Moderate loads and temps. in the swirl chamber obstruct the vaporization and the onset of combustion of long-chain **fuels**. In non-adapted swirl-chamber diesel engines, it is

most likely that vegetable **oils** with short-chain **fatty acids** can be **burned** without major problems. It is likely that the position of the injection nozzle can be redesigned so that less coke is formed.

ST diesel engine rapeseed **oil** combustion; **fatty acid** combustion diesel engine

IT Combustion
(of vegetable **oils**; thermodn. anal. of combustion of vegetable **oils** as alternative **fuel** for swirl-chamber diesel engines)

IT **Fuels**, diesel
(substitute; thermodn. anal. of combustion of vegetable **oils** as alternative **fuel** for swirl-chamber diesel engines)

IT Rape **oil**
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(thermodn. anal. of combustion of vegetable **oils** as alternative **fuel** for swirl-chamber diesel engines)

IT **Fatty acids**, reactions
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(C8-10, substitute diesel **fuel**; thermodn. anal. of combustion of vegetable **oils** as alternative **fuel** for swirl-chamber diesel engines)

IT Engines
(diesel, vegetable **oil**-fueled; thermodn. anal. of combustion of vegetable **oils** as alternative **fuel** for swirl-chamber diesel engines)

IT Engines
(diesel, rape **oil**-fueled, thermodn. anal. of combustion of vegetable **oils** as alternative **fuel** for swirl-chamber diesel engines)

L7 ANSWER 41 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1996:245103 CAPLUS

DN 124:293889

TI Reduction of pollutants by premixed combustion of **fuel** gases derived from liquid **fuels**

AU Stoffel, B.; Reh, L.

CS Zurich, Switz.

SO VDI-Berichte (1995), 1193(Verbrennung und Feuerungen: 17. Deutscher Flammentag, 1995), 549-56
CODEN: VDIBAP; ISSN: 0083-5560

PB VDI-Verlag

DT Journal

LA German

CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59

AB The combustion of N-free and N-contg. liq. **fuels** (i.e., MeOH, EtOH, n-heptane, unleaded gasoline, propane, light distillate **fuel oil**, and rape-**oil** Me ester) was examd. in a premix ceramic-fiber **burner** (15-kW thermal capacity). Combustion was characterized by the following steps: (1) rapid evapn. of atomized liq. **fuel** in the presence of a small amt. of water vapor in an externally heated evaporator, (2) mixing of the **fuel** gases with preheated combustion air, and (3) combustion at the ceramic fiber surface of the **burner**. For the N-free **fuels** (all the above **fuels** except for the **fuel oil**), extremely low NOx (10-50 mg/m3 at air-**fuel** ratio, λ, 1.2; 5-20 mg/m3 at λ ~2) and CO **emissions** were attained. Under these conditions, combustion of the N-contg. **fuel oil** resulted in significantly higher NOx **emissions**, due to the nearly complete conversion of **fuel**-N to NOx.

ST premixed combustion ceramic fiber **burner**; nitrogen oxide premixed combustion; **fuel oil** premixed combustion nitrogen oxide

IT **Burners**
(ceramic fiber; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT **Fuel oil**
(light distillate, combustion of; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT Combustion
(premix; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT Synthetic fibers
RL: DEV (Device component use); USES (Uses)
(ceramic, in **burners**; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT Ceramic materials and wares
RL: DEV (Device component use); USES (Uses)
(fibers, in **burners**; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT Gasoline
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(lead-free, combustion of; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT **Fatty acids**, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(rape-**oil**, Me esters, combustion of; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT 630-08-0, Carbon monoxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide (NOx), formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(formation of; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
IT 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions 74-98-6, Propane, reactions 142-82-5, Heptane, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(model **fuel**, combustion of; redn. of NOx and CO **emissions** by premix combustion of liq. **fuels** in ceramic-fiber **burner**)
L7 ANSWER 42 OF 56 CAPLUS COPYRIGHT 2002 ACS
AN 1996:175004 CAPLUS
DN 124:237078
TI Transient testing of soy methyl ester **fuels** in an indirect injection, compression **ignition** engine
AU Purcell, D. L.; McClure, B. T.; McDonald, J.; Basu, Hemendra N.
CS U.S. Bureau Mines, Twin Cities Research Center, Minneapolis, MN, 55417, USA
SO Journal of the American Oil Chemists' Society (1996), 73(3), 381-7
CODEN: JAOCA7; ISS
N: 0003-021X
PB AOCS Press
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59
AB An evaluation of the exhaust **emissions** from a compression **ignition**

engine for **fuels** composed of 100 and 30% Me esters of soy **oil** (SME) is described. These **fuels** were compared with a low-sulfur, petroleum #2 diesel **fuel** in a Caterpillar 3304, prechamber, 75 kW diesel engine, operated over heavy- and light-duty transient test cycles developed by the United States Bureau of Mines. More than 60 h of testing was performed on each **fuel**. The objective was to det. the influence of the **fuels** upon diesel particulate matter (DPM) and gaseous **emissions**. The effect of a modern diesel oxidn. catalyst (DOC) also was detd. in an effort to minimize **emissions**. Neat SME produced a higher volatile fraction of the DPM, but much less carbon soot fraction, leading to overall DPM redns. of 23 to 30% for the light- and heavy-duty transients. The DOC further reduced the volatile fraction and the total DPM. The SME **fuel** reduced gaseous **emissions** of CO by 23% and hydrocarbons by over 30% without increasing NOx. The DOC further reduced CO and hydrocarbon levels. Mutagenicity of the SME exhaust was low. Results indicate that SME **fuel**, used with a proper DOC, may be a feasible **emission** redn. technol. for underground mines.

ST soy methyl ester **fuel** **ignition** engine

IT Hydrocarbons, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(**emission**; transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT Rare earth metals, uses
RL: CAT (Catalyst use); USES (Uses)
(oxidn. catalyst, with platinum; transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT **Ignition**
Oxidation catalysts
(transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT Engines
(diesel, indirect injection compression **ignition**; transient testing of soy Me ester **fuels** in)

IT Exhaust gases
(diesel, transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(soya, Me esters; transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT **Fuels**, diesel
(substitutes, transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT 50-00-0, Formaldehyde, formation (nonpreparative) 630-08-0, Carbon monoxide, formation (nonpreparative) 10102-43-9, Nitric oxide, formation (nonpreparative) 10102-44-0, Nitrogen dioxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(**emission**; transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

IT 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); USES (Uses)
(oxidn. catalyst, with rare earth; transient testing of soy Me ester **fuels** in an indirect injection compression **ignition** engine)

L7 ANSWER 43 OF 56 CAPLUS

Full Text

AN 1996:122111 CAPLUS

DN 124:180971
TI Combustion of soybean **oil** methyl ester in a direct injection diesel engine
AU Scholl, Kyle W.; Sorenson, Spencer C.
CS Caterpillar Inc., USA
SO Alternate Fuels: A Decade of Success and Promise (1994), 555-67.
Editor(s): Bata, Reda Mohamed. Publisher: Society of Automotive Engineers, Warrendale, Pa.
CODEN: 62KQAI
DT Conference
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59
AB The purpose of this study is to investigate the combustion of soybean **oil** Me ester in a direct injection diesel engine, and compare it to that of a conventional diesel **fuel**. Exptl. measurements of performance, **emissions**, and rate of heat release were performed as a function of engine load for different **fuel** injection timings, and injector orifice diams. It was found that overall, the soybean **oil** Me ester behaved comparably to diesel **fuel** in terms of performance and rate of heat release. The Me ester **fuel** gave lower HC **emissions** and smoke no. than diesel **fuel** at optimum operating conditions. The results for CO **emissions** were varied. NOx **emissions** were strongly related to the cylinder pressure development. Changing the injection orifice diam. had less effect on engine performance when using diesel **fuel**, than with Me ester **fuel**. A smaller orifice diam. gave higher cylinder pressure and max. rate of pressure increase, higher NOx **emissions**, and a larger amt. of premixed **burning** for both **fuels**. The variation of injection timing had a pronounced effect on performance and **emissions** for both **fuels**. Conventional trends in **emissions**, performance and rate of heat release were obsd. for both **fuels**.
ST combustion soybean **oil** methyl ester engine; diesel engine soybean **oil** methyl ester
IT Combustion
(combustion of soybean **oil** Me ester in a direct injection diesel engine)
IT Hydrocarbons, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(**emissions**; combustion of soybean **oil** Me ester in a direct injection diesel engine)
IT Engines
(diesel, combustion of soybean **oil** Me ester in a direct injection diesel engine)
IT **Fatty acids**, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(esters, soya, Me esters; combustion of soybean **oil** Me ester in a direct injection diesel engine)
IT 630-08-0, Carbon monoxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(**emissions**; combustion of soybean **oil** Me ester in a direct injection diesel engine)

L7 ANSWER 44 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1996:48676 CAPLUS
DN 124:265467
TI Comparative study of the boiling characteristics of vegetable **oils** for the evaluation as **fuel**
AU Wenzel, G.; Lammers, P. Schulze

CS Inst. Landtechnik, Univ. Bonn, Bonn, D-53115, Germany
SO Fett Wissenschaft Technologie (1995), 97(Sonderausgabe 1), 475-81
CODEN: FWTEEG; ISSN: 0931-5985
PB Konradin-Industrieverlag
DT Journal
LA German
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45

AB The boiling curves of vegetable **oils** (hazelnut,rapeseed, rice seed, sesame, cotton seed, safflower) were detected regarding their use as engine **fuels**. The diagrams are very similar. The **oils** decomp. during distn., the decompn. products are produced in different quantities, and 30% remain as a polymer tar. Shifting of b.ps. from 250-270° in the first fraction indicates a relation between b.p. and compn. of vegetable **oils**. The distn. products are instable and become dark with time. During decompn., acid water contg. short chain O compds. is generated, which **ignites** less well than long chain C enriched compds. This could explain the increased **emission** of aldehydes and ketones in exhaust gases of vegetable **oils**.

ST vegetable **oil** boiling curve **fuel**

IT Boiling point
Distillation
(boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT **Fatty acids**, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT Cottonseed **oil**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT Rape **oil**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT Safflower **oil**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT **Fuels**
(bio-, boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT **Fats** and Glyceridic **oils**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(hazelnut, boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT **Fats** and Glyceridic **oils**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(rice bran, boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT **Fats** and Glyceridic **oils**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(sesame, boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT **Fats** and Glyceridic **oils**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(vegetable, boiling characteristics of vegetable **oils** for evaluation as **fuel**)

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-33-3, Linolic acid, biological studies

463-40-1, Linolenic acid   27104-13-8   28929-01-3
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(boiling characteristics of vegetable **oils** for evaluation as **fuel**)

L7   ANSWER 45 OF 56   CAPLUS   COPYRIGHT 2002 ACS
Full Text
AN   1995:901606   CAPLUS
DN   124:33576
TI   **Fatty acid** methyl esters as diesel **fuel**. Economic, ecological and energetic implications
AU   Gomez Herrera, Carlos
CS   Academico Numerario Real Academia Sevillana Ciencias, Seville, 41012, Spain
SO   Grasas y Aceites (Seville) (1995), 46(2), 121-9
CODEN: GRACAN; ISSN: 0017-3495
PB   Instituto de la Grasa y sus Derivados
DT   Journal; General Review
LA   Spanish
CC   52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51
AB   A review with 13 refs. Rapeseed **oils** are transesterified with methanol to obtain **fatty acid** Me esters. Blends of these esters with diesel **oil** are sold in petrol stations in different European countries like any other **fuel**. This informative article starts by reviewing basic characteristics of diesel **fuel**, and continues with an anal. of phys. properties, chem. compn. and present specifications for the rapeseed Me esters. Subsequently several implications derived from the industrial development of this biofuel are discussed. These implications are economic, ecol. (nearly zero **emissions** for whole cycle of carbon dioxide, other exhaust **emissions** from combustion, eco-balances), and energetic (complete evaluation of **energy** expenditure for prodn., energetic ratios).
ST   review **fatty acid** methyl ester **fuel**; diesel **fuel** **fatty acid** ester review; rapeseed **oil** ester diesel **fuel** review
IT   **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Me esters, economic and ecol. and energetic implications **fatty acid** Me esters as diesel **fuel**)
IT   **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters, economic and ecol. and energetic implications **fatty acid** Me esters as diesel **fuel**)
IT   **Fuels**, diesel
(substitutes, economic and ecol. and energetic implications **fatty acid** Me esters as diesel **fuel**)

L7   ANSWER 46 OF 56   CAPLUS   COPYRIGHT 2002 ACS
Full Text
AN   1995:627087   CAPLUS
DN   123:118312
TI   **Emissions** characteristics of soy methyl ester **fuels** in an IDI compression **ignition** engine
AU   McDonald, J. F.; Purcell, D. L.; McClure, B. T.; Kittelson, D. B.
CS   U.S. Bureau of Mines, USA
SO   Society of Automotive Engineers, [Special Publication] SP (1995), SP-1093, 191-207
CODEN: SAESA2; ISSN: 0099-5908
DT   Journal
LA   English

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 59

AB As part of an ongoing program to control the **emissions** of diesel-powered equipment used in underground mines, the U.S. Bureau of Mines evaluated exhaust **emissions** from a compression **ignition** engine using oxygenated diesel **fuels** and a diesel oxidn. catalyst (DOC). The **fuels** include neat (100%) soy Me ester (SME), and a blend of 30 vol.% SME with 70% petroleum diesel **fuel**. A Caterpillar 3304 PCNA engine was tested for approx. 50 h on each **fuel**. Compared with com. low-sulfur diesel **fuel** (D2), neat SME increased volatile org. diesel particulate matter (DPM) but greatly decreased non-volatile DPM, for a net decrease in total DPM. The DOC further reduced volatile and total DPM. NOx **emissions** were slightly reduced for the case of neat SME, but otherwise were not significantly affected. Peak brake power decreased 9% and brake specific **fuel** consumption increased 13 to 14% for the neat Me soyate because of its lower **energy** content compared with D2. An anal. of apparent heat release rates found that SME exhibited a shorter **ignition** delay and some part load redns. in premixed **burn**.

ST mine diesel exhaust **emission** oxidn catalyst; **fuel** diesel soybean **oil** Me ester

IT **Fuels**, diesel
  Ignition
   (**emissions** characteristics of soy Me ester **fuels** from diesel engine in mine)

IT Oxidation catalysts
   (exhaust; **emissions** characteristics of soy Me ester **fuels** from diesel engine in mine)

IT Exhaust gases
   (catalytic-converter, **emissions** characteristics of soy Me ester **fuels** from diesel engine in mine)

IT Exhaust gases
   (diesel, **emissions** characteristics of soy Me ester **fuels** from diesel engine in mine)

IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
   (soya, Me esters, **emissions** characteristics of soy Me ester **fuels** from diesel engine in mine)

IT 11104-93-1, Nitrogen oxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
   (**emissions** characteristics of soy Me ester **fuels** from diesel engine in mine)

L7 ANSWER 47 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1995:626783 CAPLUS

DN 123:118304

TI Performance of rapeseed methyl ester in diesel engine

AU Nwafor, O. M. I.; Rice, G.

CS Department of Engineering, University of Reading, UK

SO Renewable Energy (1995), 6(3), 335-42
CODEN: RNENE3; ISSN: 0960-1481

DT Journal

LA English

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45

AB The paper presents the results of a research carried out to evaluate the performance of rapeseed Me ester (RME) on an unmodified diesel engine. The paper compares the effect of using RME in a diesel engine with baseline test on diesel **fuel**. The test results on rapeseed Me ester showed high friction power and a net redn. in hydrocarbon **emissions**. Carbon deposits on the injector were similar to those obsd. when running on diesel **fuel**. **Fuel** diln. of the lubricating **oil** was noted,

indicating an incomplete combustion due to the still low volatility of plant **fuel**.
ST rapeseed Me ester diesel **fuel**; friction hydrocarbon **emission** rapeseed Me ester
IT **Fuels**, diesel
(performance of rapeseed Me ester as)
IT Combustion
Ignition
(performance of rapeseed Me ester in diesel engine)
IT Lubricating **oils**
(diesel, diln. with rapeseed Me ester **fuel** during operation)
IT Exhaust gases
(diesel, hydrocarbon **emissions** from rapeseed Me ester)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-**oil**, Me esters, **fuel**; performance of rapeseed Me ester in diesel engine)

L7 ANSWER 48 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1995:595889 CAPLUS
DN 123:60892
TI Plant **oils** as liquid **energy** carriers
AU Widmann, Bernhard A.
CS Bayerische Landesanstalt Landtechnik, Freising-Weihenstephan, Germany
SO GSF-Ber. (1995), 01/95, 25-45
CODEN: GSFBEM; ISSN: 0721-1694
DT Report
LA German
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45, 59
AB After a short summary of the development of and rationale for large-scale use of vegetable **oil**-derived diesel **fuel**, engine tests were carried out for diesel **fuel** mixts. contg. 10% rapeseed **oil** or rapeseed-**oil** Me esters, pure rapeseed **oil**, and rapeseed-**oil** Me esters. Despite favorable **emissions** data and engine compatibility results, economically, the introduction of rapeseed **oil**-derived substitute diesel **fuels** makes more sense in local agricultural areas where markets such as inland marine diesel **fuels**, agricultural **fuels**, and protected watershed and mountain regions can provide special niches or take advantage of the favorable environmental aspects of vegetable **oil**-derived diesel **fuels**. It is entirely possible, at least for Germany, that a more widespread use of these **fuels** into the general diesel market will require large imports of raw materials, esp. from developing countries.
ST substitute diesel **fuel** vegetable **oil**; rapeseed **oil** Me ester substitute diesel; air pollution vegetable **oil** diesel; engine compatibility vegetable **oil** diesel; economics vegetable substitute diesel **fuel**
IT Air pollution
(air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)
IT Rape **oil**
RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)
(air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)
IT Combustion
(compression-**ignition**; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)
IT Aldehydes, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation,

nonpreparative); OCCU (Occurrence)
(**emissions**; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT **Fuels**, diesel
(substitute; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT Hydrocarbons, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(unburned **emissions**; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT Aromatic hydrocarbons, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(C6-8, **emissions**; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT Engines
(diesel, air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT Aromatic hydrocarbons, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(polycyclic, **emissions**; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT **Fatty acids**, uses
RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)
(rape-**oil**, Me esters, air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT **Fats** and Glyceridic **oils**
RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)
(vegetable, air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

IT 124-38-9, Carbon dioxide, formation (nonpreparative) 630-08-0, Carbon monoxide, formation (nonpreparative) 7446-09-5, Sulfur dioxide, formation (nonpreparative) 11104-93-1, Nitrogen oxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(**emissions**; air pollution and engine compatibility testing of vegetable **oil**-based substitute diesel **fuels**)

L7 ANSWER 49 OF 56 CAPLUS

Full Text

AN 1995:589122 CAPLUS

DN 123:118330

TI **Emissions** from biodiesel combustion in a boiler of a heating system

AU De Stefanis, P.; Di Palo, C.; Montani, R.; Zagaroli, M.; Di Palo, V.; Rotatori, M.

CS Dip. Ambiente, ENEA, S. Maria di Galeria, 00060, Italy

SO Rivista dei Combustibili (1994), 48(9), 337-42
CODEN: RICOAP; ISSN: 0370-5463

PB Centro Graphico Linate

DT Journal

LA Italian

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59

AB The paper examines the results of combustion tests performed on a boiler of a hot water central heating system. The tested biodiesel **fuel** was a Me ester produced from vegetable **oils** by a transesterification reaction. The aim of the tests was the comparison between the biodiesel **emissions** and the gas **oil** ones, when **burning** at the same operating conditions. Even though the results of the tests do not allow to draw a conclusion, they provided the base for future expts.

ST biodiesel **fuel** combustion **emission** boiler heater; vegetable **oil** methyl ester biodiesel **fuel**

IT Combustion
(**emissions** from combustion of biodiesel **fuel** in boiler of hot water heating system)

IT Waste gases
(from combustion of biodiesel **fuel** in boiler of hot water heating system)

IT **Fuels**, diesel
(substitutes, vegetable **oil** Me ester; **emissions** from combustion of biodiesel **fuel** in boiler of hot water heating system)

IT **Fatty acids**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(vegetable-**oil**, Me esters, biodiesel **fuel**; **emissions** from combustion of biodiesel **fuel** in boiler of hot water heating system)

IT 50-00-0, Formaldehyde, occurrence 50-32-8, Benzo[a]pyrene, occurrence 53-70-3, Dibenz[a,h]anthracene 56-55-3, Benz[a]anthracene 75-07-0, Acetaldehyde, occurrence 85-01-8, Phenanthrene, occurrence 120-12-7, Anthracene, occurrence 129-00-0, Pyrene, occurrence 191-24-2, Benzo[ghi]perylene 193-39-5, Indeno[1,2,3-cd]pyrene 205-99-2, Benz[e]acephenanthrylene 206-44-0, Fluoranthene 207-08-9, Benzo[k]fluoranthene 218-01-9, Chrysene 630-08-0, Carbon monoxide, occurrence 7446-09-5, Sulfur dioxide, occurrence 11104-93-1, Nitrogen oxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(waste gases contg.; **emissions** from combustion of biodiesel **fuel** in boiler of hot water heating system)

L7 ANSWER 50 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1995:575721 CAPLUS
DN 123:12364
TI A life-cycle inventory for the production of alcohol sulfates in Europe
AU Hirsinger, F.; Schick, K.-P.
CS Duesseldorf, Germany
SO Tenside, Surfactants, Detergents (1995), 32(2), 128-32, 134-9
CODEN: TSDEES; ISSN: 0932-3414
PB Hanser
DT Journal; General Review
LA English
CC 46-0 (Surface Active Agents and Detergents)

AB A review with 1 ref. on the resources and **energy** requirements and environmental **emission** arising from the prodn. of 1000 kg of alc. sulfates (AS) based on petrochem. (AS-PC) and 3 oleochem. sources: palm **oil** (AS-PO), palm kernel **oil** (AS-PKO), and coconut **oil** (AS-CNO). The total **energy** requirements range from 52 to 73 GJ/1000 kg (AS-Pc). The fossil-**energy** requirements range from 17.0 GJ (AS-PO) to 69.8 GJ (AS-Pc), representing 33% and 95%, resp., of the total **energy** requirement for the products. Most of the atm. **emissions** arise from the prodn. and consumption of **fuels** and reflect the process **energy** requirements. Methane **emissions** arise from the manuf. of AS-PO and AS-PKO. Non-fossil CO2 arises from AS-PKO and AS-CNO prodn. due to

combustion of fibers and shells for **energy** generation at the **oil** mill. Most of the waterborne **emissions** arise from processing operations. COD ranges from 1.6 kg/1000 kg (AS-Pc) to 11 kg (AS-CNO), and dissolved solids range from 5.3 kg to 32 kg, resp. AS-PKO and AS-PO have a COD of about 3 kg and dissolved solids of about 7.6 kg. The high waterborne **emissions** from coconut systems arise from the run-off coconut water when the nuts are halved. The major part of the solid waste is **fuel**-related, ranging from 59% (AS-PKO) to 83% (AS-Pc) of the total solid waste, which ranges from 68 kg (AS-PO) to 88 kg (AS-PKO).

ST review alc sulfate surfactant prodn; anionic surfactant prodn pollution review

IT Waste solids
Wastewater
(prepn. of and pollution from prepn. of alc. sulfate surfactants)

IT Alcohols, preparation
RL: POL (Pollutant); SPN (Synthetic preparation); OCCU (Occurrence); PREP (Preparation)
(prepn. of and pollution from prepn. of alc. sulfate surfactants)

IT Coconut **oil**
RL: POL (Pollutant); SPN (Synthetic preparation); OCCU (Occurrence); PREP (Preparation)
(alkyl sulfate, prepn. of and pollution from prepn. of alc. sulfate surfactants)

IT Surfactants
(anionic, prepn. of and pollution from prepn. of alc. sulfate surfactants)

IT **Fatty acids**, preparation
RL: POL (Pollutant); SPN (Synthetic preparation); OCCU (Occurrence); PREP (Preparation)
(palm-**oil**, sulfo, esters, prepn. of and pollution from prepn. of alc. sulfate surfactants)

L7 ANSWER 51 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1994:327416 CAPLUS
DN 120:327416
TI Performance and **emission** characteristics of a diesel engine operating on safflower seed **oil** methyl ester
AU Isigigur, A.; Karaosmanoglu, F.; Aksoy, H. A.; Hamdullahpur, F.; Gulder, O. L.
CS Chem. Eng. Dep., Istanbul Tech. Univ., Istanbul, 80626, Turk.
SO Applied Biochemistry and Biotechnology (1994), 45-46, 93-102
CODEN: ABIBDL; ISSN: 0273-2289
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51

AB Evaluation and testing of safflower seed **oil** Me ester as a diesel **fuel** alternative was carried out. The kinematic viscosity and ASTM **fuel** properties of the Me ester **fuel** were within the limits specified for Grade No. 2-D diesel **fuel**. Engine tests were performed on a 4-cylinder, direct-injection CI (compression **ignition**) engine using Me ester and ref. diesel **fuel**; engine performance and exhaust **emission** characteristics were detd. Safflower seed **oil** Me ester revealed similar engine performance characteristics to the ref. Grade No. 2-D diesel **fuel**. Lower CO and hydrocarbon **emissions** were obtained when Me ester was used, and the negligible amt. of S content was an addnl. advantage of Me ester over diesel **fuel**.

ST safflower **oil** methyl ester diesel **fuel**; engine safflower **oil** ester diesel **emission**

IT Exhaust gases
(from diesel engine fueled with safflower-**oil** Me ester, low

pollutant levels in)
IT Hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(in flue gases from safflower-**oil** Me ester-fueled diesel engine, low levels of)
IT Engines
(diesel, direct-injection, compression-**ignition**, safflower-**oil** Me ester-fueled, performance of)
IT **Fatty acids**, esters
RL: USES (Uses)
(safflower-**oil**, Me esters, as diesel **fuel**, engine performance and **emissions** using)
IT **Fuels**, diesel
(substitutes, safflower-**oil** Me ester, engine performance and **emissions** using)
IT 630-08-0, Carbon monoxide, miscellaneous 7704-34-9, Sulfur, miscellaneous
RL: MSC (Miscellaneous)
(in flue gases from safflower-**oil** Me ester-fueled diesel engine, low levels of)

L7 ANSWER 52 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1994:138747 CAPLUS
DN 120:138747
TI Effect of **fuel** modifications on Detroit diesel engine exhaust **emissions**
AU Winsor, R E.
CS Detroit Diesel Corp., USA
SO IMechE Seminar Publication (1993), (2, Fuels for Automotive and Industrial Diesel Engines), 35-43
CODEN: ISEME4; ISSN: 1357-9193
DT Journal; General Review
LA English
CC 51-0 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
AB A review, with 9 refs., of changes in pollutant **emissions** (esp. hydrocarbons, CO, NOx, and particulates) based on **fuel** compns. and different types of synthetic diesel **fuel** and **fuel** additives. Types of **fuels** evaluated included rapeseed **oil** Me esters, soybean **oil** Me esters, **ignition** improvers, oxygenates, and diglyme and di-Me carbonate additives. Reformulated **fuels** can significantly reduce NOx, CO, and particulates from heavy-duty engines; similarly, oxygenated **fuel** additives can reduce particulates from heavy-duty engines by at least 20%. **Ignition** improver additives can provide significant NOx **emission** redn. Transient **emission** levels as low as 0.056 g/bhp-hr particulates with 4.2 g/bhp-hr NOx were achieved without exhaust gas treatment.
ST review diesel **fuel** air pollution; exhaust **emission** diesel **fuel** review; reformulated diesel **fuel** pollution review; synthetic diesel **fuel** pollution review; oxygenated diesel **fuel** pollution review; **ignition** improver diesel pollution review; nitrogen oxide diesel **fuel** review; particulate diesel **fuel** review
IT **Fuels**, diesel
(compn. of and additives for, pollutant **emissions** in relation to)
IT Alcohols, uses
RL: USES (Uses)
(diesel **fuel** contg., exhaust **emissions** from)
IT **Ignition**
(of diesel **fuel**, additives for improvement of, exhaust **emissions** in relation to)
IT Particles
(airborne, formation of, in combustion of diesel **fuel**, effect

of **fuel** compn. and additives on)

IT Exhaust gases
(diesel, air pollution by, effect of **fuel** compn. and additives on)

IT **Fatty acids**, esters
RL: USES (Uses)
(rape-**oil**, Me esters, diesel **fuel** contg., exhaust **emissions** from)

IT **Fatty acids**, esters
RL: USES (Uses)
(soya, Me esters, diesel **fuel** contg., exhaust **emissions** from)

IT 111-96-6, Diglyme 616-38-6, Dimethyl carbonate
RL: USES (Uses)
(diesel **fuel** contg., exhaust **emissions** from)

IT 7782-44-7D, Oxygen, org. compds.
RL: RCT (Reactant); RACT (Reactant or reagent)
(diesel **fuel** contg., exhaust **emissions** from)

IT 630-08-0P, Carbon monoxide, preparation 11104-93-1P, Nitrogen oxide, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in combustion of diesel **fuel**, effect of **fuel** compn. and additives on)

L7 ANSWER 53 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1994:81416 CAPLUS

DN 120:81416

TI Combustion of soybean **oil** methyl ester in a direct injection diesel engine

AU Scholl, Kyle W.; Sorenson, Spencer C.

CS Caterpillar Inc., USA

SO Society of Automotive Engineers, [Special Publication] SP (1993), SP-958(New Developments in Alternative Fuels and Gasolines for SI and CI Engines), 211-23
CODEN: SAESA2; ISSN: 0099-5908

DT Journal

LA English

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59

AB The purpose of this study is to investigate the combustion of soybean **oil** Me ester in a direct injection diesel engine, and compare it to that of a conventional diesel **fuel**. Exptl. measurements of performance, **emissions**, and rate of heat release were performed as a function of engine load for different **fuel** injection timings, and injector orifice diams. It was found that overall, the soybean **oil** Me ester behaved comparably to diesel **fuel** in terms of performance and rate of heat release. The Me ester **fuel** gave lower hydrocarbon **emissions** and smoke no. than diesel **fuel** at optimum operating conditions. The results for CO **emissions** were varied. NOx **emissions** were strongly related to the cylinder pressure development. Changing the injection orifice diam. had less effect on engine performance when using diesel **fuel**, than with Me ester **fuel**. A smaller orifice diam. gave higher cylinder pressure and max. rate of pressure increase, higher NOx **emissions**, and a larger amt. of premixed **burning** for both **fuels**. The variation of injection timing had a pronounced effect on performance and **emissions** for both **fuels**. Conventional trends in **emissions**, performance and rate of heat release were obsd. for both **fuels**.

ST soybean **oil** methyl ester **fuel** diesel; engine **fuel** soybean **oil** methyl ester

IT Hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(**emission** of, in exhaust gases of soybean **oil** Me ester-fueled direct injection diesel engine)

IT Combustion
(of soybean **oil** Me ester, in direct injection diesel engine)
IT Exhaust gases
(of soybean **oil** Me ester-fueled direct-injection diesel engine, **emissions** in)
IT Engines
(diesel, direct-injection soybean **oil** Me ester-fueled, performance of)
IT **Fatty acids**, esters
RL: RCT (Reactant); RACT (Reactant or reagent)
(soya, Me esters, combustion of, in direct injection diesel engine)
IT 7782-44-7
RL: USES (Uses)
(combustion, of soybean **oil** Me ester, in direct injection diesel engine)
IT 11104-93-1, Nitrogen oxide, uses
RL: USES (Uses)
(**emission** of, in exhaust gases of soybean **oil** Me ester-fueled direct injection diesel engine)
IT 630-08-0, Carbon monoxide, miscellaneous
RL: MSC (Miscellaneous)
(**emission** of, in exhaust gases of soybean **oil** Me ester-fueled direct injection diesel engine)

L7 ANSWER 54 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1993:172370 CAPLUS
DN 118:172370
TI Water-in-**oil**-in-water emulsion **fuels** and their combustion
IN Kanekiyo, Katsumasa
PA Nippon Kankyo Assessment Center, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C10L001-32
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04252294	A2	19920908	JP 1991-41447	19910128
	JP 06074430	B4	19940921		

AB The **fuels** are obtained by stirring 75-95 parts heavy **oils** having viscosity 150-4000 cSt (50°), 5-25 parts H_2O, and 0.01-0.5% nonionic surfactants (HLB value 5-12) of C4-12 linear or branched alkyl- or alkenyl-contg. polyoxyethylene Ph ethers (I), C8-20 (un)satd. linear or branched higher aliph. alc.-derived polyoxyethylene alkyl or alkenyl ethers (II), C8-20 (un)satd. linear or branched higher **fatty acid**-derived polyoxyethylene alkanoyl or alkenoyl ethers (III), and/or C8-20 (un)satd. linear or branched higher **fatty acid** alkanol amide-derived polyoxyethylene higher **fatty acid** alkanol amide ethers (IV) at 30-80° to give a water-in-**oil** emulsion (W) and stirring 15-30 parts H_2O, 0.01-1.0% surfactants contg. ≥1 nonionic surfactants (HLB value 10-18) selected from I-IV, and 70-85 parts W at 30-80°, and their combustion process comprises preheating the **fuels** to decrease viscosity to ≤50 cSt and **burning** with an atomization **burner**. **Emission** of air pollutants, e.g., NOx, SOx, dust, etc., are prevented by using the **fuels** and the combustion process.
ST emulsion **fuel** heavy **oil** surfactant; combustion emulsion **fuel** atomization **burner**; air pollution prevention emulsion **fuel**
IT Air pollution

(prevention, water-in-**oil**-in-water emulsion **fuels** for)

IT Polyethers, uses
RL: USES (Uses)
(surfactants, emulsion **fuels** contg. water and heavy **oils** and, for prevention of air pollution)

IT Surfactants
(anionic, emulsion **fuels** contg. water and heavy **oils** and, for prevention of air pollution)

IT **Fuel oil**
(emulsions, water-in-**oil**-in-water, contg. heavy **oils** and nonionic surfactants, for prevention of air pollution)

IT Petroleum
RL: USES (Uses)
(heavy, emulsion **fuels** contg. water and nonionic surfactants and, for prevention of air pollution)

IT Surfactants
(nonionic, emulsion **fuels** contg. water and heavy **oils** and, for prevention of air pollution)

IT Combustion
(spray, of water-in-**oil**-in-water emulsion **fuels**, for prevention of air pollution)

IT 7782-44-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(combustion, spray, of water-in-**oil**-in-water emulsion **fuels**, for prevention of air pollution)

IT 8061-51-6, Sodium lignin sulfonate 9008-63-3 9016-45-9, Nonyl phenol ethoxylate 25322-68-3D, derivs.
RL: USES (Uses)
(surfactants, emulsion **fuels** contg. water and heavy **oils** and, for prevention of air pollution)

L7 ANSWER 55 OF 56 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1981:445868 CAPLUS
DN 95:45868
TI **Fuel oil** additives
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC C10L001-12; C10L001-18
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 56016593	A2	19810217	JP 1979-92630	19790723

AB **Fuel oil** additives contg. an Fe compd. and a C≥10 **fatty acid** have an inhibiting effect on NOx formation during the combustion of **fuel oil**. Thus, an additive was prepd. by dilg. a mixt. contg. Fe(OH)O 2.36, stearic acid [57-11-4] 0.5, and fluid paraffin 5 kg with 3.67 L kerosine. A heavy petroleum **oil** contg. 0.2 wt.% of the additive was **burned**; and the combustion gas formed contained 157 ppm NOx, compared to 198 ppm in the absence of the additive.

ST **fuel oil** additive combustion improver; iron hydroxide oxide **fuel** additive; stearic acid **fuel oil** additive; nitrogen oxide **emission** control combustion

IT Combustion
(of **fuel oil**, additive for nitrogen oxides **emission** control in)

IT 57-11-4, uses and miscellaneous

RL: USES (Uses)
(combustion improvers, contg. iron hydroxide oxide and stearic acid, for reduced nitrogen oxides formation)

IT 11104-93-1, uses and miscellaneous
RL: USES (Uses)
(**emission** of, in **fuel oil** combustion, additives for prevention of)

IT 20344-49-4
RL: USES (Uses)
(**fuel oil** additive compn. contg., for reduced nitrogen oxides formation during combustion)

L7 ANSWER 56 OF 56 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1973:434727 CAPLUS

DN 79:34727

TI Effect of combustion on the thermal detoxication of gaseous **emissions**

AU Gurevich, N. A.

CS Inst. Gaza, Kiev, USSR

SO Khim. Tekhnol. (Kiev) (1973), (2), 46-50
CODEN: KHMTA6

DT Journal

LA Russian

CC 59-2 (Air Pollution and Industrial Hygiene)

AB The after **burning** of toxic **emissions** from the manuf. of synthetic **fatty acids**, phthalic anhydride, drying **oils**, viscose fibers, and carbon black with the aid of natural gas, **fuel oil**, and **coal** was studied. The contribution of **fuel** combustion products to the toxicity of effluents, kind of **fuel** and its consumption, ratio of combustion products to gaseous **emissions**, specific air consumption, conditions and technol. process of after **burning** were taken into account in derivation of formulas, detg. the efficiency of thermal detoxication. The leading pollutants and toxicity factors (actual concn.-to-max. allowable concn. ratio were: (1) NO_x, 8000-40,000; (2) SO_2 + NO_2, 20,000-60,000; (3) particulate matter + NO_2 + SO_2, 30,000-50,000 for combustion of natural gas, **fuel oil**, and **coal**, resp., where the lower limit corresponds to demands of hygienic standardization and the upper limit is based on phys.-chem. factors of synergistic action of combustion products. Thus, choice of **fuel** and technol. process affect substantially the efficiency of thermal detoxication of gaseous **emissions**. Detoxication efficiency may be increased considerably when using natural gas and decreasing its sp. consumption by rational use of reagents, heat, and by applying catalysts **Coal** and **fuel oil** are practically in applicable to thermal detoxication of effluents, for which toxicity factor lies below 50,000. The recommended method of detn. of total toxicity of atm. pollutants is intended exclusively for comparative evaluation of gaseous effluents.

ST drying **oil emission** detoxication; thermal detoxication org vapor; viscose fiber **emission** detoxication; phthalic anhydride **emission** detoxication; **fuel** combustion **emission** detoxication; nitrogen oxide **emission** detoxication; combustion waste gas

IT **Oils**
RL: IMF (Industrial manufacture); PREP (Preparation)
(drying, waste gas from manuf. of, thermal detoxication of)

IT Combustion
(of waste gases, in afterburner, thermal detoxication in)

IT Waste gases
(thermal detoxication of, in afterburner)

IT Carbon black, preparation
Fatty acids, preparation
Rayon, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(waste gas from manuf. of, detoxication of, in afterburner)

```
IT   Fuel oil
       Coal
     Natural gas
     RL: OCCU (Occurrence)
        (waste gas thermal detoxication by, in afterburner)
IT   7446-09-5, uses and miscellaneous   11104-93-1
     RL: REM (Removal or disposal); PROC (Process)
        (removal of, from waste gas in afterburner)
IT   85-44-9P
     RL: IMF (Industrial manufacture); PREP (Preparation)
        (waste gas from manuf. of, detoxication of, in afterburner)


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COST IN U.S. DOLLARS                             SINCE FILE     TOTAL
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FULL ESTIMATED COST                                  172.04    172.25

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L1        273225 S FATTY ACID
L2        837432 S FAT OR OIL
L3         92558 S L1 AND L2
L4             0 S L3 AND (FUEL OE COAL)
L5          2364 S L3 AND (FUEL OR COAL)
L6           342 S L5 AND (BURN?  OR IGNIT? OR ENERGY)
L7            56 S L6 AND EMISSION

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                                                      ENTRY   SESSION
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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)       SINCE FILE     TOTAL
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FILE COVERS 1907 - 1 Dec 2002  VOL 137 ISS 23
FILE LAST UPDATED: 29 Nov 2002  (20021129/ED)

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=> s l5 and byproduct
         24054 BYPRODUCT
         19941 BYPRODUCTS
         39833 BYPRODUCT
                 (BYPRODUCT OR BYPRODUCTS)
L8          30 L5 AND BYPRODUCT

=> d l8 1-30 ti

L8   ANSWER 1 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Advances in biodiesel fuel research

L8   ANSWER 2 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Procedure and apparatus for the continuous production of bio-methanol and
     bio-ethanol diesel

L8   ANSWER 3 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Biodiesel fuel production by transesterification of oils

L8   ANSWER 4 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Organic compounding agent for powdered nitramon explosive

L8   ANSWER 5 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Non-TNT nitramon explosive for coal mine

L8   ANSWER 6 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Powdered ammonium nitrate-based explosives for quarry

L8   ANSWER 7 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Process for preparing feed supplements for ruminants

L8   ANSWER 8 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Process for preparing alkyl esters of fatty acids from fats and oils

L8   ANSWER 9 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Evaluation of method performance and detection limits for various
     flotation reagents used in the Florida phosphate industry

L8   ANSWER 10 OF 30  CAPLUS  COPYRIGHT 2002 ACS
TI   Optimization of enzymatic transesterification of rapeseed oil ester
     using response surface and principal component methodology

L8   ANSWER 11 OF 30  CAPLUS  COPYRIGHT 2002 ACS
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TI Biodiesel production: a review

L8 ANSWER 12 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Preparation of mixture of esters of C1-4 alcohols and **fatty acids** of natural **oils** and **fats** especially for use as diesel **fuel** or heating **oil**

L8 ANSWER 13 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Low temperature conversion of sugar-cane **byproducts**

L8 ANSWER 14 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Mixed vegetable and diesel **oil** as **fuel**

L8 ANSWER 15 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Refining method for waste edible **oils** as raw materials for recovery of diesel **fuels**, glycerin and substitute **fuels** for heavy-**oil** burners

L8 ANSWER 16 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Biodegradation of diesel and heating **oil** by Acinetóbacter calcoaceticus MM5: its possible applications on bioremediation

L8 ANSWER 17 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Energy analysis of rape methyl ester (RME) production from winter oilseed rape

L8 ANSWER 18 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Production of diesel **fuel** from rape **oil**

L8 ANSWER 19 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Substitutes for sulfurized sperm **oil** from a mixture of natural and synthetic esters

L8 ANSWER 20 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Method for purifying fatty esters

L8 ANSWER 21 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI The potential of biodiesel, from oilseed rape

L8 ANSWER 22 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Catalytic upgrading of biomass derivatives to transportation **fuels**

L8 ANSWER 23 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Emulsion **fuel** from heavy petroleum fractions

L8 ANSWER 24 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Conversion of high-acidity vegetable **oils** to ethyl esters in the presence of acid catalysts, for **fuels**

L8 ANSWER 25 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Ammonium nitrate-tall **oil** explosives

L8 ANSWER 26 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Principle of the new ATT process for converting vegetable **oils** to diesel **fuels**

L8 ANSWER 27 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Manufacture of uranium-containing heavy metal salts using sea water as raw material and producing pure water as **byproduct**

L8 ANSWER 28 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI Extraction and transesterification of vegetable **oils** with ethanol

L8 ANSWER 29 OF 30 CAPLUS COPYRIGHT 2002 ACS

TI Continuous reactor with heterogeneous organic catalysts for transesterification of vegetable **oils**

L8 ANSWER 30 OF 30 CAPLUS COPYRIGHT 2002 ACS
TI **Fuel oil** additives

=> dl8 1 13 14 15 18 22 30 all
DL8 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> d 18 1 13 14 15 18 22 30 all

L8 ANSWER 1 OF 30 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 2002:554404 CAPLUS
DN 137:250109
TI Advances in biodiesel **fuel** research
AU Kann, Juri; Rang, Heino; Kriis, Juri
CS Institute of Chemistry, Tallinn Technical University, Tallinn, 12618, Estonia
SO Proceedings of the Estonian Academy of Sciences, Chemistry (2002), 51(2), 75-117
CODEN: PESCFO; ISSN: 1406-0124
PB Estonian Academy Publishers
DT Journal; General Review
LA English
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 17
AB A review of research on biodiesel **fuel** sources, properties, prepn. methods, prodn., exhaust gases emitted by using biodiesel **fuel**, anal. methods, and economic aspects. The main advantage of biodiesel **fuel** is lower concn. of greenhouse gases (esp. CO2) and other pollutants in motor exhaust gases compared to petroleum diesel **fuel**. The main concerns with biodiesel **fuel** are its relatively high price, instability, and low-temp. properties. The future aims in biodiesel **fuel** research are improvement of prodn. technol. and redn. of the costs of prodn. of plant **oil** by plant breeding, selection, and gene technol. The low-temp. properties and stability of biodiesel **fuel** can be improved by additives and genetic engineering of **oil** plants. The paper includes 250 refs.
ST review biodiesel **fuel** transesterification **fatty acid** ester emission control
IT **Fats** and Glyceridic **oils**, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(as renewable raw materials for biodiesel; review of advances in biodiesel **fuel** research with regards to source **oils** and **fatty acid** distribution in triglycerides of **fats** and **oils**)
IT Molecular structure-property relationship
(b.p., cetane no., viscosity, d., heats of combustion, iodine no., low temp. properties such as m.p., crystallite onset temp., pour and cloud point; review of phys. and chem. properties of diesel and various biodiesel esters)
IT Diesel **fuel** substitutes
(biodiesel; review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
IT Air pollution
(control, reduced pollutant emission using biodiesel; review of advances in biodiesel **fuel** research with regards to source

oils, additives, and processing)
IT **Fatty acids**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(esters; review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
IT **Fatty acids**, occurrence
RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
(**fatty acid** distribution in triglycerides of **fats** and **oil** used as renewable raw materials for biodiesel)
IT Diesel **fuel** additives
(for modification of viscosity, corrosion and lubrication properties, pour point and crystn., and polymn.-fouling; review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
IT Genetic engineering
(manipulation of **fatty acid** distribution in triglycerides of **oils** for raw materials for biodiesel)
IT Wastes
(**oil**, as renewable raw materials for biodiesel; review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
IT Transesterification
(processes, catalysts, and **byproducts**; review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
IT Greenhouse gases
(reduced levels of; review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
IT Exhaust gases (engine)
(review of advances in biodiesel **fuel** research with regards to source **oils**, additives, and processing)
RE.CNT 257 THERE ARE 257 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L8 ANSWER 13 OF 30 CAPLUS

Full Text

AN 1998:593782 CAPLUS

DN 129:191451

TI Low temperature conversion of sugar-cane **byproducts**
AU Lutz, Harald; Esuoso, Kayode; Kutubuddin, Mohamed; Bayer, Ernst
CS Institute of Organic Chemistry, University of Tubingen, D-72076, Germany
SO Biomass and Bioenergy (1998), 15(2), 155-162
CODEN: BMSBEO; ISSN: 0961-9534
PB Elsevier Science Ltd.
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49, 60
AB This work reports the low temp. conversion (LTC) of the most important sugar-cane **byproducts**, i.e., sugar-cane bagasse, filter mud, molasses and alc. sludge, into **oil**, char, reaction water and non-condensable gases. The **oil** was analyzed for **fatty acids** and hydrocarbons. Active carbon was produced from the char and was characterized subsequently. Filter mud gave the highest yield of LTC **oil** (20.6%), while other samples recorded yields lower than 6%. The heating values of the **oils** were between 24.5 kJ g-1 and 35.6 kJ g-1. Thermogravimetric studies of the LTC **oil** from filter mud indicated that 99% was vaporized at temps. below 450°. Varying concns. of C8-C30 hydrocarbons were detected in the **oil**. The distribution pattern of hydrocarbons, however, was unusual compared to typical **oils** from LTC. The yields of LTC chars were between 35.4% and 77.6%. These chars have been activated and the conditions were optimized. Active carbon from bagasse recorded a high iodine and methylene blue no. (1180 mg g-1 and 275 mg g-1, resp.). The BET surface is also very high (1035 m2 g-1) and consists of a large proportion of micro- and mesopores. Active carbons produced from the other samples however exhibited also fairly high iodine, methylene blue and BET values. These results are discussed comparatively and the potential of the wastes is outlined.
ST sugarcane **byproduct** conversion **fuel oil**
IT Hydrocarbons, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(C8-C30; low temp. conversion of sugarcane **byproducts**)
IT Mud
(filter mud; low temp. conversion of sugarcane **byproducts**)
IT Bagasse
Calorific value
Chars
Sludges
Sugarcane
(low temp. conversion of sugarcane **byproducts**)
IT Alkanes, preparation
Alkenes, preparation
Hydrocarbon **oils**
RL: SPN (Synthetic preparation); PREP (Preparation)
(low temp. conversion of sugarcane **byproducts**)
IT Molasses
(sludge; low temp. conversion of sugarcane **byproducts**)
IT **Fuel oil**
Fuel oil
(synthetic, pyrolytic; low temp. conversion of sugarcane **byproducts**)
IT 7440-44-0P, Carbon, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(activated; low temp. conversion of sugarcane **byproducts**)
IT 64-17-5P, Ethanol, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(sludge; low temp. conversion of sugarcane **byproducts**)

L8 ANSWER 14 OF 30 CAPLUS
Full Text

AN 1997:635644 CAPLUS
DN 127:309420
TI Mixed vegetable and diesel **oil** as **fuel**
AU Zubr, J.; Matzen, R.
CS Department of Agricultural Sciences, The Royal Veterinary and Agricultural University, Frederiksberg, 1958, Den.
SO Biomass for Energy and the Environment, Proceedings of the European Bioenergy Conference, 9th, Copenhagen, June 24-27, 1996 (1996), Volume 3, 1644-1653. Editor(s): Chartier, Philippe. Publisher: Elsevier, Oxford, UK.
CODEN: 65BUA6
DT Conference
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 11
AB Biofuel for diesel engines was introduced to the market in certain European countries recently. Vegetable **oil** as raw material for the biofuel originates from oilseed crops grown on set-aside land with EC subsidies. Prodn. of the biofuel includes the conversion process of esterification, requiring special equipment and a considerable input in the form of additives, energy, and labor. **Byproducts** from esterification, e.g., glycerin and polluted water, are unavoidable. To minimize the prodn. expenses and to eliminate the **byproducts**, an alternative **fuel** was found in the form of a mixt. contg. diesel **oil** and crude vegetable **oil**. For this purpose a naturally pure vegetable **oil** was chosen from seeds of false flax Camelina sativa. At the present time, Camelina is not known as an agricultural crop in practice. However, the crop can be grown under different climatic conditions using a low input and environmentally friendly cultivation without application of pesticides. Camelina **oil** is characterized by a high content of unsatd. **fatty acids** (about 90%). Iodine no. of the **oil** is about 160. The mixed **fuel** was tested in a Farymann Diesel engine, run at const. optimum load of 4.00 kW with 3260 R/min. The engine was fueled with pure diesel **oil** and with two mixts. contg. camelina **oil**. Each **fuel** was tested by running the engine for 250 h. Specific consumption of pure diesel **oil** was 271.6 g/kWh. When running the engine on the mixed **fuel** with 5 and 10% camelina **oil**, the specific consumption of **fuel** was 273.4 g/kWh and 277.1 g/kWh, resp. Carbon deposits on the piston and combustion chamber, and the amts. of soot in the exhaust gas, were similar for all tested **fuels**. Carbon deposits on the injection nozzle were slightly increased with increasing proportions of camelina **oil** in the mixed **fuel**. Independent of the **fuel**, after running for 250 h, the function of the injectors was still within the norm for ordinary performance.
ST vegetable **oil** diesel **oil** **fuel** blend; camelina **oil** diesel **oil** **fuel** blend; biofuel vegetable **oil** diesel **oil** blend; biodiesel camelina **oil** diesel **oil** blend
IT **Fuels**
(alternative; mixed vegetable and diesel **oil** as **fuel**
)
IT **Fuels**
(biofuels; mixed vegetable and diesel **oil** as **fuel**)
IT Analytical numbers
(iodine no.; mixed vegetable and diesel **oil** as **fuel**
)
IT Calorific value
Camelina sativa
Cetane number
Cloud point
Coking
Density
Diesel engines
Diesel **fuel**

Flash point
Soot
Viscosity
(mixed vegetable and diesel **oil** as **fuel**)

IT Rape **oil**
Soybean **oil**
Sunflower **oil**
RL: PRP (Properties)
(mixed vegetable and diesel **oil** as **fuel**)

IT **Fats** and Glyceridic **oils**, reactions
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(vegetable; mixed vegetable and diesel **oil** as **fuel**)

IT 7440-44-0, Carbon, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(deposits; mixed vegetable and diesel **oil** as **fuel**)

IT 57-10-3, Palmitic acid, properties 57-11-4, Stearic acid, properties 60-33-3, Linoleic acid, properties 112-80-1, Oleic acid, properties 112-86-7, Erucic acid 463-40-1, Linolenic acid 506-30-9, Arachidic acid 5561-99-9, Gondoic acid 25448-01-5, Eicosadienoic acid 27070-56-0, Eicosatrienoic acid
RL: PRP (Properties)
(mixed vegetable and diesel **oil** as **fuel**)

L8 ANSWER 15 OF 30 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1997:614387 CAPLUS
DN 127:265530
TI Refining method for waste edible **oils** as raw materials for recovery of diesel **fuels**, glycerin and substitute **fuels** for heavy-**oil** burners
IN Someya, Akio
PA Someya Shoten Y. K., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C10L001-02
ICS B01J027-02; C10L001-08; C11B013-00; C11C003-10; C07B061-00
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 17, 45, 60
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09235573	A2	19970909	JP 1996-67154	19960228
	JP 3028282	B2	20000404		

AB The title method comprises heating waste edible **oils** in a caustic alkali-dissolved MeOH soln. for transesterification to sep. higher **fatty acid** Me esters as diesel **fuels**, neutralizing the **byproducts** to distn. recover MeOH and to sep. refined glycerin, esterifying the remainder of higher **fatty acids** with MeOH and H2SO4 catalyst, neutralizing the H2SO4 catalyst and water washing for removal, and obtaining higher **fatty acid** Me esters and **fatty acids** as heavy-**oil** burner substitute **fuels**.

ST waste edible **oil** diesel **fuel** recovery; burner heavy **oil** substitute **fuel**; glycerin recovery waste edible **oil** **fuel**

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); PUR (Purification or recovery); PREP (Preparation); USES (Uses)
(Me esters; refining method for waste edible **oils** as raw materials for recovery of diesel **fuels**, glycerin and substitute **fuels** for heavy-**oil** burners)

IT Wastes
(cooking **oil**; refining method for waste edible **oils**

as raw materials for recovery of diesel **fuels**, glycerin and
substitute **fuels** for heavy-**oil** burners)

IT Wastes
(edible **oils**; refining method for waste edible **oils**
as raw materials for recovery of diesel **fuels**, glycerin and
substitute **fuels** for heavy-**oil** burners)

IT **Fuel oil**
(heavy, substitute; refining method for waste edible **oils** as
raw materials for recovery of diesel **fuels**, glycerin and
substitute **fuels** for heavy-**oil** burners)

IT Burners
(**oil**-fired; refining method for waste edible **oils**
as raw materials for recovery of diesel **fuels**, glycerin and
substitute **fuels** for heavy-**oil** burners)

IT Diesel **fuel**
(refining method for waste edible **oils** as raw materials for
recovery of diesel **fuels**, glycerin and substitute
fuels for heavy-**oil** burners)

IT **Fatty acids**, uses
RL: NUU (Other use, unclassified); PUR (Purification or recovery); PREP
(Preparation); USES (Uses)
(refining method for waste edible **oils** as raw materials for
recovery of diesel **fuels**, glycerin and substitute
fuels for heavy-**oil** burners)

IT **Fuel oil**
(substitutes; refining method for waste edible **oils** as raw
materials for recovery of diesel **fuels**, glycerin and
substitute **fuels** for heavy-**oil** burners)

IT **Fats** and Glyceridic **oils**, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical
process); PROC (Process); USES (Uses)
(vegetable, cooking **oil** wastes; refining method for waste
edible **oils** as raw materials for recovery of diesel
fuels, glycerin and substitute **fuels** for heavy-
oil burners)

IT 56-81-5P, Glycerin, preparation
RL: BYP (Byproduct); PREP (Preparation)
(refining method for waste edible **oils** as raw materials for
recovery of diesel **fuels**, glycerin and substitute
fuels for heavy-**oil** burners)

L8 ANSWER 18 OF 30 CAPLUS COPYRIGHT 2002 ACS

Full Text

AN 1995:806351 CAPLUS
DN 123:204328
TI Production of diesel **fuel** from rape **oil**
IN Skopal, Frantisek; Komers, Karel; Machek, Jaroslav
PA Czech Rep.
SO Czech Rep., 5 pp.
CODEN: CZXXED
DT Patent
LA Czech
IC C10L001-02; C10L001-18; C07C067-03; C11C003-04
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 19
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CZ 278914	B6	19940817	CZ 1992-2208	19920715
	SK 277856	B6	19950510	SK 1992-2208	19920715
PRAI	CZ 1992-2208		19920715		

AB Diesel **fuel** is produced from rape **oil** by transesterification with MeOH

in the presence of a KOH catalyst. H_3PO_4 10-50% mol. excess (KOH basis) is then added. After neutralization, unreacted MeOH is removed by vacuum evapn. at 666-1333 Pa or air bubbling at 20-50°, condensed, and recycled. The pptd. KH_2PO_4 is sepd. by filtration or centrifuging and used as a fertilizer. The liq. phase is sepd. to obtain an upper layer of the synthetic diesel **fuel** and a lower aq. glycol layer.

ST diesel **fuel** manuf rape **oil**

IT Fertilizers
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(potassium dihydrogen phosphate **byproduct** from synthetic diesel **fuel** manuf.)

IT Rape **oil**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(transesterification of rape **oil** with methanol in manuf. of diesel **fuel**)

IT **Fatty acids**, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(rape-**oil**, Me ester; as synthetic diesel **fuel**)

IT **Fuels**, diesel
(synthetic, prodn. of synthetic diesel **fuel** from rape **oil**)

IT 1310-58-3, Potassium hydroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(as catalyst in transesterification of rape **oil** in manuf. of synthetic diesel **fuel**)

IT 7778-77-0P, Potassium phosphate (KH_2PO_4)
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(**byproduct** from synthetic diesel **fuel** manuf. as fertilizer)

IT 7664-38-2, Phosphoric acid, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in transesterification of rape **oil** in manuf. of diesel **fuel**)

IT 67-56-1, Methanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(in transesterification of rape **oil** in manuf. of diesel **fuel**)

L8 ANSWER 22 OF 30 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1993:653564 CAPLUS
DN 119:253564
TI Catalytic upgrading of biomass derivatives to transportation **fuels**
AU Olson, Edwin S.; Sharma, Ramesh K.
CS Universal Fuel Dev. Associates, Inc., Grand Forks, ND, 58201, USA
SO Energy from Biomass and Wastes (1993), 16, 739-51
CODEN: EBWADU; ISSN: 0277-7851
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51

AB Hydrocracking of biomass-derived materials for manuf. of transportation **fuels** was investigated under several conditions. Data on the conversion of **fatty acids** to high-quality gasoline products are presented. These studies serve as models for the use of waste **oils** and **byproducts**, e.g., tall acids, that could serve as inexpensive precursors for transportation **fuels**. Studies with Ni-substituted synthetic mica montmorillonite and its alumina-pillared form catalysts gave high yields of distillate in the gasoline range contg. high percentage of branched alkanes and low percentage of arom. hydrocarbons.

ST biomass deriv catalytic upgrading transportation **fuel**; gasoline synthetic **fatty acid** conversion; mica montmorillonite catalyst biomass upgrading **fuel**

IT Tall **oil**
RL: USES (Uses)
(catalytic upgrading of, to transportation **fuels**)

IT Alkanes, preparation
Cycloalkanes
RL: FORM (Formation, nonpreparative)
(formation of, in catalytic upgrading of biomass derivs. to transportation **fuels**)

IT Gasoline
RL: USES (Uses)
(manuf. of, catalytic upgrading of biomass derivs. for)

IT Catalysts and Catalysis
(synthetic mica montmorillonite, nickel-substituted, alumina-pillared, for upgrading of biomass derivs. to transportation **fuels**)

IT Aromatic hydrocarbons, preparation
RL: FORM (Formation, nonpreparative)
(C6-8, formation of, in catalytic upgrading of biomass derivs. to transportation **fuels**)

IT **Fuels**
(automotive, manuf. of, catalytic upgrading of biomass derivs. for)

IT Aromatic hydrocarbons, preparation
RL: FORM (Formation, nonpreparative)
(bicyclic, formation of, in catalytic upgrading of biomass derivs. to transportation **fuels**)

IT Alkanes, preparation
RL: FORM (Formation, nonpreparative)
(branched, formation of, in catalytic upgrading of biomass derivs. to transportation **fuels**)

IT Mica-group minerals, compounds
RL: USES (Uses)
(interstratification compds., with montmorillonite, nickel-substituted, alumina-pillared, synthetic, catalysts, for upgrading of biomass derivs. to transportation **fuels**)

IT Wastes
(**oil**, vegetable, catalytic upgrading of, to transportation **fuels**)

IT Aromatic hydrocarbons, preparation
RL: FORM (Formation, nonpreparative)
(tricyclic, formation of, in catalytic upgrading of biomass derivs. to transportation **fuels**)

IT **Fats** and Glyceridic **oils**
RL: USES (Uses)
(vegetable, waste, catalytic upgrading of, to transportation **fuels**)

IT 112-80-1, Oleic acid, uses
RL: USES (Uses)
(catalytic upgrading of, to transportation **fuels**)

IT 1318-93-0D, Montmorillonite, interstratification compds. with mica, nickel-substituted, alumina-pillared
RL: USES (Uses)
(synthetic, catalysts, for upgrading of biomass derivs. to transportation **fuels**)

L8 ANSWER 30 OF 30 CAPLUS COPYRIGHT 2002 ACS
Full Text
AN 1967:413600 CAPLUS
DN 67:13600
TI **Fuel oil** additives
PA Basic Inc.

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SO   Brit., 4 pp.
     CODEN: BRXXAA
DT   Patent
LA   English
IC   C10L
CC   51 (Petroleum, Petroleum Derivatives, and Related Products)
FAN.CNT 1
     PATENT NO.        KIND  DATE            APPLICATION NO.  DATE
     ---------------   ----  --------        ---------------  --------
PI   GB 1061161              19670308
PRAI US                      19630529
AB   Carboxylic acids are dispersants for metal-contg. corrosion inhibitors in
     fuel oil concentrates.  The dispersant may be a tall oil acid, a
     rosin acid, a hydrogenated rosin acid, an aromatic or alkylaromatic acid,
     a naphthenic acid or a fatty acid.  Acid loadings of 0.5-15.0 wt.%
     enable concentrates to be prepd. contg. ≤84 wt. % solid inhibitor
     while maintaining stability and good pumping characteristics.  These
     properties are due to the formation of a soap between the acid and the
     metal-contg. inhibitor and hence similar results can be obtained by adding
     the appropriate carboxylic acid salt.  In an example, 300 g. Dolomite were
     added to 150 g. No. 2 fuel oil in a Waring blender to give a nonfluid
     paste contg. 66.7% solids.  The addn. of 1 g. tallene (a byproduct
     recoverable from waste paper liquors which comprises a mixt. of fatty and
     rosin acids) converted the mix to an extremely fluid and pumpable
     dispersion.  The method permits higher loadings of corrosion inhibitors in
     additive concentrates and reduces the unit power requirements of any
     operation, such as grinding, which may subsequently be carried out on the
     mixt.
ST   INHIBITORS CORROSION FUEL OILS; FUEL OILS CORROSION INHIBITORS;
     CORROSION INHIBITORS FUEL OILS; METAL CORROSION INHIBITORS CONTG;
     DISPERSANTS CORROSION INHIBITORS
IT   Acids, uses and miscellaneous
     RL: USES (Uses)
        (carboxylic, as dispersant for metal-contg. corrosion inhibitors for
        fuel oils)
IT   Fuel oil, reactions
        (corrosion by, dispersants for inhibitors for, carboxylic acids)
IT   Acids, uses and miscellaneous
     RL: USES (Uses)
        (metal-contg. corrosion inhibitor dispersant from carboxylic, for
        fuel oils)
IT   Tallene
     RL: USES (Uses)
        (as dispersant for metal-contg. corrosion inhibitors in fuel
        oil)
IT   17069-72-6
     RL: USES (Uses)
        (as fuel oil additive)
IT   1317-43-7
     RL: USES (Uses)
        (calcined, as fuel oil additive)


=> ly
LY IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> log y
COST IN U.S. DOLLARS                                 SINCE FILE      TOTAL
                                                          ENTRY    SESSION
```

FULL ESTIMATED COST	35.27	209.38
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-4.34	-39.03

STN INTERNATIONAL LOGOFF AT 18:12:18 ON 01 DEC 2002